



# **Rocky Flats Environmental Technology Site**

## **PRE-DEMOLITION SURVEY REPORT (PDSR)**

### **TENTS 10 and 11 CLOSURE PROJECT**

**REVISION 0**

**February 4, 2003**



**CLASSIFICATION REVIEW NOT REQUIRED PER  
EXEMPTION NUMBER CEX-005-02**

**ADMIN RECORD  
IA-A-001319**

1/56


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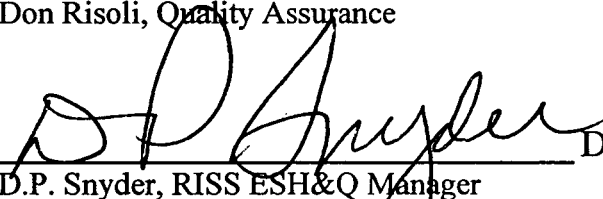
Reviewed by:



Date: 02/08/03

Don Risoli, Quality Assurance

Reviewed by:



Date: 2/3/03

D.P. Snyder, RISS ESH&Q Manager

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Date: 2/4/03

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## ATTACHMENTS

- A Facility Location Map
- B Radiological Data Summaries and Survey Maps
- C Chemical Data Summaries and Sample Maps
- D Data Quality Assessment (DQA) Detail

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## ABBREVIATIONS/ACRONYMS

ACM	Asbestos Containing Material
Be	Beryllium
CDPHE	Colorado Department of Public Health and the Environment
DCGL <sub>EMC</sub>	Derived Concentration Guideline Level – elevated measurement comparison
DCGL <sub>W</sub>	Derived Concentration Guideline Level – Wilcoxon Rank Sum Test
D&D	Decontamination and Decommissioning
DDCP	Decontamination and Decommissioning Characterization Protocol
DOE	U.S. Department of Energy
DPP	Decommissioning Program Plan
DQA	Data quality assessment
DQOs	Data quality objectives
EPA	U.S. Environmental Protection Agency
FDPM	Facility Disposition Program Manual
HVAC	Heating, ventilation, air conditioning
HSAR	Historical Site Assessment Report
HEUN	Highly Enriched Uranyl Nitrate
IHSS	Individual Hazardous Substance Site
IWCP	Integrated Work Control Package
K-H	Kaiser-Hill
LBP	Lead-based paint
LLW	Low-level waste
MARSSIM	Multi-Agency Radiation Survey and Site Investigation Manual
MDA	Minimum detectable activity
MDC	Minimum detectable concentration
NORM	Naturally occurring radioactive material
NRA	Non-Rad-Added Verification
OSHA	Occupational Safety and Health Administration
PARCC	Precision, accuracy, representativeness, comparability and completeness
PCBs	Polychlorinated Biphenyls
PDS	Pre-demolition survey
QC	Quality Control
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS	Rocky Flats Environmental Technology Site
RFFO	Rocky Flats Field Office
RLC	Reconnaissance Level Characterization
RLCR	Reconnaissance Level Characterization Report
RSA	Removable Surface Activity
RSP	Radiological Safety Practices
SVOCs	Semi-volatile organic compounds
TCLP	Toxicity Characteristic Leaching Procedure
TSA	Total surface activity
VOCs	Volatile organic compounds

## EXECUTIVE SUMMARY

A Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of Tents 10 and 11. Because these Type 2 structures will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Structure surfaces characterized as part of this PDS included the tent fabric and metal structure supports comprising the pad, walls, ceiling, and roof. The asphalt pad beneath the tents was radiologically surveyed in accordance with the Waste Release Evaluation (WRE) process, and all results were less than the unrestricted release criteria and are included in this PDSR. Environmental media beneath and surrounding the structures were not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

The PDS encompassed both radiological and chemical characterization to enable compliant disposition and waste management pursuant to the D&D Characterization Protocol (MAN-077-DDCP). The characterization built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report and Reconnaissance Level Characterization Report for Group A Facilities, dated June 14, 2000, Revision 2.

Results indicate that no radiological, beryllium, asbestos or PCB contamination exists in excess of the PDSP unrestricted release limits. Sampling and analysis for RCRA/CERCLA constituents has been conducted as part of the RCRA closure process. The results of this sampling effort demonstrated that the material is not a regulated hazardous waste, and is suitable for disposal at a sanitary landfill.

Based upon the PDSR, Tents 10 and 11 can be demolished and the waste managed as sanitary waste. To ensure that the facility remains free of contamination and that PDS data remain valid, isolation controls have been established, and the areas has been posted accordingly.

## **1 INTRODUCTION**

A Pre-Demolition Survey (PDS) was performed to enable compliant disposition and waste management of Tents 10 and 11. Because these Type 2 structures will be demolished, the characterization was performed in accordance with the Pre-Demolition Survey Plan (MAN-127-PDSP). Building surfaces characterized as a part of this PDS included the pad, walls, ceiling and roof. The asphalt pad beneath the tents was radiologically surveyed in accordance with the Waste Release Evaluation (WRE) process, and all results were less than the unrestricted release criteria and are included in this PDSR. Environmental media beneath and surrounding the facilities were not within the scope of this PDS and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

As part of the Rocky Flats Environmental Technology Site (RFETS) Closure Project, numerous facilities will be removed, among these are Tents 10 and 11. The location of these structures is shown in Attachment A, Facility Location Map. These structures no longer supports the RFETS mission and will be removed to reduce Site infrastructure, risks and/or operating costs.

Before these Type 2 structures can be demolished, the Data Quality Objectives (DQOs) for a Pre-Demolition Survey (PDS) must be satisfied; this document presents the PDS results for Tents 10 and 11. The PDS was conducted pursuant to the Decontamination and Decommissioning Characterization Protocol (MAN-077-DDCP) and the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). The PDS is built upon physical, chemical and radiological hazards identified in the facility-specific Historical Site Assessment Report and Reconnaissance Level Characterization Report for Group A Facilities, dated June 14, 2000, Revision 2.

### **1.1 Purpose**

The purpose of this report is to communicate and document the results of Tents 10 and 11 PDS effort. A PDS is performed prior to building demolition to define the final radiological and chemical conditions of a facility. Final conditions are compared with the release limits for radiological and non-radiological contaminants. PDS results will enable project personnel to make final disposition decisions, develop related worker health and safety controls, and estimate waste volumes by waste types.

### **1.2 Scope**

This report presents the final radiological and chemical conditions of Tents 10 and 11. Environmental media beneath and surrounding the structures are not within the scope of this PDSR and will be addressed in accordance with the Soil Disturbance Permit process and in compliance with RFCA.

### **1.3 Data Quality Objectives**

The Data Quality Objectives (DQOs) used in designing this PDS were the same DQOs identified in the Pre-Demolition Survey Plan for D&D Facilities (MAN-127-PDSP). Refer to section 2.0 of MAN-127-PDSP for these DQOs.

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## 2 HISTORICAL SITE ASSESSMENT

A Facility-specific Historical Site Assessment (HSA) and Reconnaissance Level Characterization (RLC) was conducted to understand the facility history and related hazards. The HSA consisted of facility walkdowns, interviews, and document review, including review of the Historical Release Report, and were used to design the RLC. The Tents 10 and 11 RLC was performed in FY 2000 as part of the Group A Facilities (refer to *Reconnaissance Level Characterization Report for the Group A Facilities*, dated June 14, 2000, Revision 2). Based on the RLCR results, Tents 10 and 11 were classified as Type 2 structures, therefore, PDS characterization was required before demolition of the facility. This report documents the results of that PDS. The HSA and RLCR results were used to identify PDS data gaps and needs, and to develop radiological and chemical PDS characterization packages. HSA and RLCR documentation are located in the RISS Characterization Project files.

## 3 RADIOLOGICAL CHARACTERIZATION AND HAZARDS

Tents 10 and 11 were characterized for radiological hazards per the PDSP. Radiological characterization was performed to define the nature and extent of radioactive materials that may be present on the structure surfaces. Measurements were performed to evaluate the contaminants of concern. Based upon a review of historical and process knowledge, structure walk-downs, and MARSSIM guidance, a Radiological Characterization Plan was developed during the planning phase that describes the minimum survey requirements (refer to the RISS Characterization Project files for the Tents 10 and 11 Radiological Characterization Plan). Four radiological survey unit packages were developed: T10-A-001 (Tent 10 interior), T10-B-002 (Tent 10 exterior), T11-A-003 (Tent 11 interior) and T11-B-004 (Tent 11 exterior). Individual radiological survey unit packages are maintained in the RISS Characterization Project files.

Tents 10 and 11 survey unit packages were developed in accordance with Radiological Safety Practices (RSP) 16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation and Closure*. Total surface activity (TSA), removable surface activity (RSA), and scan measurements were collected in accordance with RSP 16.02 *Radiological Surveys of Surfaces and Structures*. Radiological survey data were verified, validated and evaluated in accordance with RSP 16.04, *Radiological Survey/Sample Data Analysis*. Quality control measures were implemented relative to the survey process in accordance with RSP 16.05, *Radiological Survey/Sample Quality Control*. Radiological survey data, statistical analysis results, survey locations, and radiological scan maps are presented in Attachment B, Radiological Data Summary and Survey Maps.

A total of 159 total surface activity (TSA) measurements (110 random, 41 biased, 8 QC) and 151 removable surface activity (RSA) measurements (110 random, 41 biased) were taken and scan surveys performed. A minimum alpha scan survey of 5% of interior surfaces (274 m<sup>2</sup> minimum) and a minimum of 3% of exterior surfaces (165 m<sup>2</sup> minimum) at biased locations was performed. None of the measurements or scans indicated elevated activity above applicable DCGL values. The asphalt pad beneath the tents was radiologically surveyed in accordance with the Waste Release Evaluation (WRE) process and all WRE results were less than the unrestricted release criteria. Radiological survey data, statistical analysis results, survey locations, asphalt pad WRE, and radiological scan maps are presented in Attachment B, Radiological Data Summary and Survey Maps. Isolation control postings are displayed on the building entrances to ensure no radioactive materials are introduced.

#### **4 CHEMICAL CHARACTERIZATION AND HAZARDS**

Tents 10 and 11 were characterized for chemical hazards per the PDSP. Chemical characterization was performed to determine the nature and extent of chemical contamination that may be present on, or in the structures. Based upon a review of historical and process knowledge, visual inspections, and PDSP DQOs, additional sampling needs were determined. A Chemical Characterization Plan was developed during the planning phase that describes sampling requirements and the justification for the sample locations and estimated sample numbers. The contaminants of concern were asbestos, beryllium, RCRA/CERCLA, lead and PCBs. Refer to Attachment C, Chemical Summary Data and Sample Maps, for details on sample results and sample locations. Isolation control postings are displayed on affected structures to ensure no hazardous materials are introduced.

##### **4.1 Asbestos**

A survey of building materials suspected of containing asbestos was conducted in Tents 10 and 11 in accordance with the RLCR for Group A facilities, dated June 14, 2000, Revision 2. A CDPHE-certified asbestos inspector conducted the inspections, and suspect materials were identified for sampling at the discretion of the inspector. No asbestos containing building materials was identified during the RLC. Furthermore, as part of the PDS, a CDPHE-certified asbestos inspector performed a visual inspection and also did not identify any building materials suspected of containing asbestos. On this basis, asbestos sampling was not conducted as part of this PDS. The RLCR asbestos sampling data can be found in the Group A Facilities RISS characterization project files.

##### **4.2 Beryllium**

Based on the RLCR, HSAR, Interview Checklists, and the Known Beryllium Area list, there was adequate historical and process knowledge to conclude that beryllium was present in Tents 10 and 11. Consequently, random and biased beryllium sampling was conducted in Tents 10 and 11 in accordance with PRO-536-BCPR, Beryllium Characterization Procedure. Biased beryllium sample locations corresponded with the most probable areas of dust accumulation (including beryllium dust), assuming airborne deposition. Random beryllium sample locations were computer generated.

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All PDS beryllium laboratory results from Tents 10 and 11 were less than the investigative limit of  $0.1 \mu\text{g}/100\text{cm}^2$ . PDS beryllium laboratory sample data and location maps are contained in Attachment C, Chemical Data Summaries and Sample Maps.

#### **4.3 RCRA/CERCLA Constituents [including metals and volatile organic compounds (VOCs)]**

Tents 10 and 11 are located on the 904 Pad, which is permitted as RCRA Unit 15. It has also been documented that the 904 Pad could have been contaminated by releases from IHSS 900-112 (located to the east of the 904 Pad) and releases of pondcrete and saltcrete on the 904 Pad during processing. The pondcrete and saltcrete possess RCRA-listed spent solvents (i.e., F001, F002, & F005) and electroplating wastes containing heavy metals (i.e., F006, F007 & F009). As a result, the 904 Pad is included as part of IHSS 900-213. Furthermore, Tent 10 contained a permacon permitted as RCRA Unit 35. Because these RCRA Units are in the process of RCRA closure, sampling and analysis for RCRA/CERCLA constituents was conducted as part of the RCRA closure process. The results of this sampling effort demonstrated that the material is not a regulated hazardous waste, and is suitable for disposal at a sanitary landfill.

The structure may have contained some RCRA regulated items, such as mercury thermostats, fluorescent light bulbs, mercury vapor light bulbs, mercury containing gauges, circuit boards, and lead-acid batteries. However, these items have been removed and are being managed in accordance with the Colorado Hazardous Waste Act.

#### **4.4 Polychlorinated Biphenyls (PCBs)**

Based on the HSAR for the Group A Facilities, interviews, facility walkdowns and a review of historical WSRIC processes, Tents 10 and 11 do not have a history of PCB use or storage. The structures may have contained PCB fluorescent light ballast, however, all PCB ballast have been removed from the structures. Also, based on the age of Tents 10 and 11, paints used on the structures do not contain PCBs. Consequently, PCB sampling and analysis was not conducted as part of this PDS and will not impact decontamination and decommissioning activities.

### **5 PHYSICAL HAZARDS**

Physical hazards associated with Tents 10 and 11 consist of those common to standard industrial environments, and include hazards associated with energized systems, utilities, and trips and falls. There are no other unique hazards associated with the facilities. The facilities have been relatively well maintained and are in good physical condition, therefore, do not present hazards associated with building deterioration. Physical hazards are controlled by the Site Occupational Safety and Industrial Hygiene Program, which is based on OSHA regulations, DOE orders, and standard industry practices.

## 6 DATA QUALITY ASSESSMENT

Data used in making management decisions for decommissioning of Tents 10 and 11, and consequent waste management, are of adequate quality to support the decisions documented in this report. The data presented in this report (Attachments B and C) were verified and validated relative to DOE quality requirements, applicable EPA guidance, and original project DQOs.

In summary, the Verification and Validation (V&V) process corroborates that the following elements of the characterization process are adequate:

- ◆ the *number* of samples and surveys;
- ◆ the *types* of samples and surveys;
- ◆ the sampling/survey process as implemented "in the field"; and
- ◆ the laboratory analytical process, relative to accuracy and precision considerations.

Details of the DQA are provided in Attachment D.

## 7 DECOMMISSIONING WASTE TYPES AND VOLUME ESTIMATES

The demolition and disposal of Tents 10 and 11 will generate a variety of wastes. Estimated waste types and waste volumes are presented below. All wastes can be disposed of as sanitary waste, except PCB Bulk Product Waste. PCB ballast and hazardous waste items have been removed and managed pursuant to Site PCB and waste management procedures.

WASTE TYPES AND VOLUME ESTIMATES							
Facility	Concrete (cu ft)	Wood (cu ft)	Metal (tons)	Corrugated Sheet Metal (cu ft)	Wall Board (cu ft)	ACM (cu ft)	Other Waste (cu ft)
Tent 10	0	0	50	0	0	0	Tent panels & misc. debris— 10 tons
Tent 11	0	0	50	0	0	0	Tent panels & misc. debris — 10 tons

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## **8 FACILITY CLASSIFICATION AND CONCLUSIONS**

Based on the analysis of radiological, chemical and physical hazards, Tents 10 and 11 are classified as RFCA Type 2 structures pursuant to the RFETS Decommissioning Program Plan (DPP; K-H, 1999). Tents 10 and 11 possess no radiological or chemical contamination in excess of the PDSP unrestricted release criteria. PCB ballast and hazardous waste items have been removed and disposed of in compliance with Environmental Protection Agency (EPA) and Colorado Department of Public Health and Environment (CDPHE) regulations. The RCRA Units associated with the tents (Units 15 and 35) will be closed under the RCRA closure process prior to demolition.

The PDS for Tents 10 and 11 was performed in accordance with the DDCP and PDSP, all PDSP DQOs were met, and all data satisfied the PDSP DQA criteria. The asphalt pad beneath the tents was radiologically surveyed in accordance with the Waste Release Evaluation (WRE) process and meets the unrestricted release criteria. Environmental media beneath and surrounding the facilities will be addressed at a future date in accordance with the Soil Disturbance Permit process and in compliance with RFCA. To ensure that Tents 10 and 11 remains free of contamination and that PDS data remain valid, isolation controls have been established, and the facilities are posted accordingly.

## 9 REFERENCES








- DOE/RFEO, CDPHE, EPA, 1996. Rocky Flats Cleanup Agreement (RFCA), July 19, 1996.
- DOE Order 5400.5, "Radiation Protection of the Public and the Environment."
- DOE Order 414.1A, "Quality Assurance."
- EPA, 1994. "The Data Quality Objective Process," EPA QA/G-4.
- K-H, 1999. Decommissioning Program Plan, June 21, 1999.
- MAN-131-QAPM, *Kaiser-Hill Team Quality Assurance Program*, Rev. 1, November 1, 2001.
- MAN-076-FDPM, *Facility Disposition Program Manual*, Rev. 3, January 1, 2002.
- MAN-077-DDCP, *Decontamination and Decommissioning Characterization Protocol*, Rev. 4, July 15, 2002.
- MAN-127-PDSP, *Pre-Demolition Survey Plan for D&D Facilities*, Rev. 1, July 15, 2002.
- MARSSIM - Multi-Agency Radiation Survey and Site Investigation Manual (NUREG-1575, EPA 402-R-97-016).
- PRO-475-RSP-16.01, *Radiological Survey/Sampling Package Design, Preparation, Control, Implementation, and Closure*, Rev. 1, May 22, 2001.
- PRO-476-RSP-16.02, *Pre-Demolition (Final Status) Radiological Surveys of Surfaces and Structures*, Rev. 1, May 22, 2001.
- PRO-477-RSP-16.03, *Radiological Samples of Building Media*, Rev. 1, May 22, 2001.
- PRO-478-RSP-16.04, *Radiological Survey/Sample Data Analysis for Final Status Survey*, Rev. 1, May 22, 2001.
- PRO-479-RSP-16.05, *Radiological Survey/Sample Quality Control for Final Status Survey*, Rev. 1, May 22, 2001.
- PRO-563-ACPR, Asbestos Characterization Procedure, Revision 0, August 24, 1999.
- PRO-536-BCPR, Beryllium Characterization Procedure, Revision 0, August 24, 1999.
- RFETS, Environmental Waste Compliance Guidance #25, Management of Polychlorinated Biphenyls (PCBs) in Paint and Other Bulk Product Waste During Facility Disposition.
- RFETS, Environmental Waste Compliance Guidance #27, Lead-Based Paint (LBP) and Lead-Based Paint Debris Disposal.
- RFETS, RFCA RSOP for Recycling Concrete, September 28, 1999
- Reconnaissance Level Characterization Report for the Group A Facilities, dated March 10, 2000, Revision 1.
- RFETS, Historical Site Assessment Report for Group A, Type 2 Tents 7, 8, 9, 10 and 11, dated October 14, 1999.

# ATTACHMENT A

## Facility Location Map

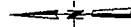
# Area 1 Group 14 Tents 10 & 11

## Standard Map Features


-  Buildings and other structures
-  Solar Evaporation Ponds (SEPs)
-  Lakes and ponds
-  Streams, ditches, or other drainage features
-  Fences and other barriers
-  Paved roads
-  Dirt roads

### DATA SOURCE BASE FEATURES:

Buildings, fences, hydrography, roads and other structures from 1994 aerial fly-over data captured by EG&G ISI, Las Vegas. Digitized from the orthophotographs, 1995



Scale - 1 : 12460  
1 inch represents approximately 1038 feet



State Plane Coordinate Projection  
Colorado Central Zone  
Datum: NAD27

U.S. Department of Energy  
Rocky Flats Environmental Technology Site

Prepared by:

**DynCorp**  
THE ART OF TECHNOLOGY

Prepared for:

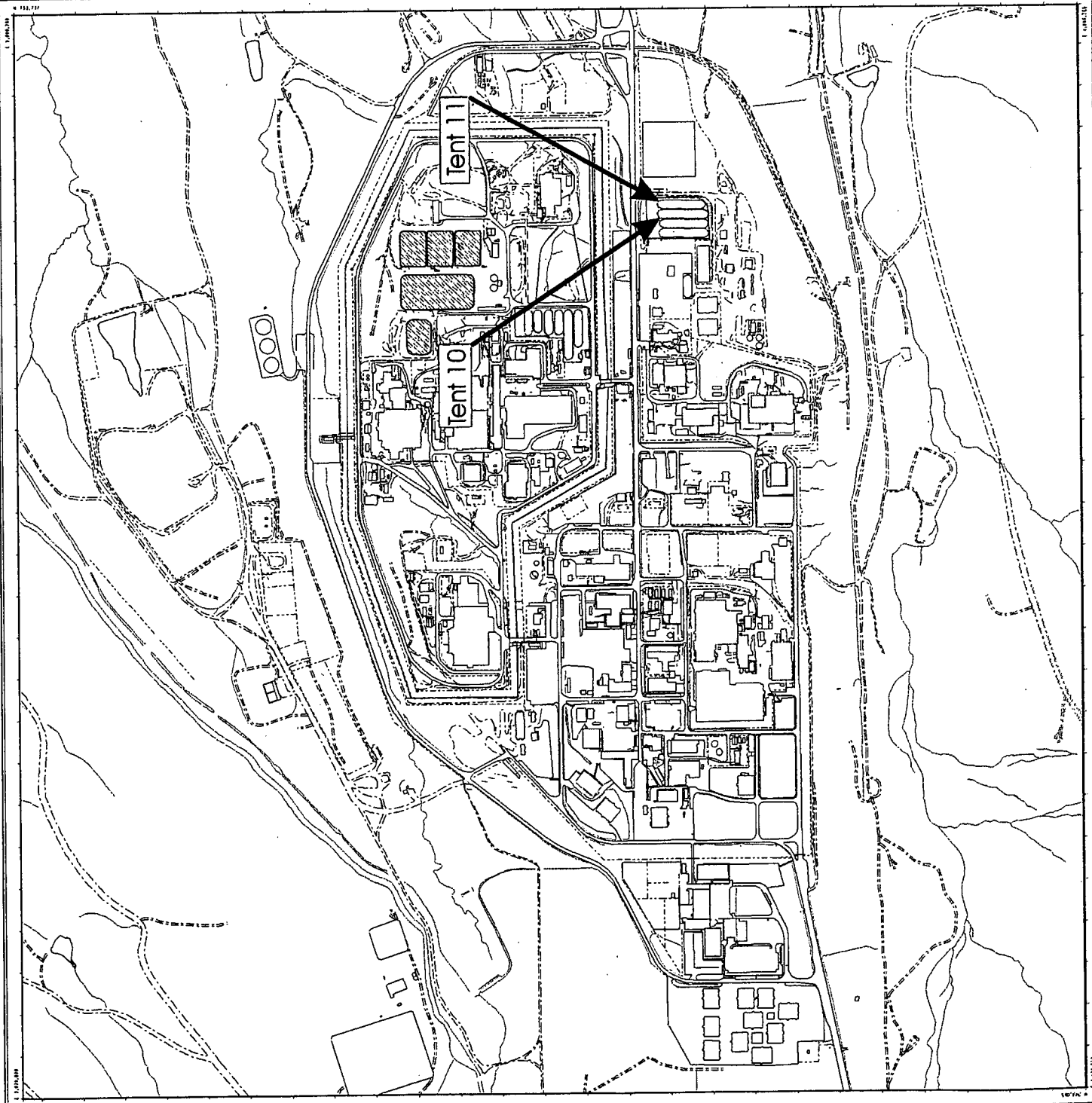
**Kaiser-Till**  
Kaiser-Till

Old Dept. 300-986-7707

MAP ID: FY 2003

January 14, 2003

NT SW/w/project/2003/03-0040/location\_770-11.ctb



## ATTACHMENT B

### Radiological Data Summaries and Survey Maps

**SURVEY UNIT T10-A-001**  
**RADIOLOGICAL DATA SUMMARY - PDS**

**Survey Unit Description: Tent 10 (Interior)**



T10-A-001  
PDS Data Summary

**Total Surface Activity Measurements**

	38	38
	Number Required	Number Obtained
MIN	-11.7	dpm/100 cm <sup>2</sup>
MAX	91.1	dpm/100 cm <sup>2</sup>
MEAN	12.8	dpm/100 cm <sup>2</sup>
STD DEV	23.5	dpm/100 cm <sup>2</sup>
TRANSURANIC DCGL <sub>w</sub>	100	dpm/100 cm <sup>2</sup>

**Removable Activity Measurements**

	38	38
	Number Required	Number Obtained
MIN	-1.2	dpm/100 cm <sup>2</sup>
MAX	4.2	dpm/100 cm <sup>2</sup>
MEAN	0.5	dpm/100 cm <sup>2</sup>
STD DEV	1.8	dpm/100 cm <sup>2</sup>
TRANSURANIC DCGL <sub>w</sub>	20	dpm/100 cm <sup>2</sup>

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**SURVEY UNIT T10-A-001  
TSA - DATA SUMMARY**

<b>Manufacturer:</b>	NE Tech	NE Tech	NE Tech	NE Tech	NE Tech	NE Tech
<b>Model:</b>	DP-6	DP-6	DP-6	DP-6	DP-6	DP-6
<b>Instrument ID#:</b>	1	2	3	7	8	12
<b>Serial #:</b>	3115	1261	3115	3115	1379	1379
<b>Cal Due Date:</b>	6/4/03	6/19/03	6/4/03	6/4/03	6/3/03	6/3/03
<b>Analysis Date:</b>	1/24/03	1/24/03	1/24/03	1/27/03	1/28/03	1/28/03
<b>Alpha Eff. (c/d):</b>	0.228	0.207	0.228	0.228	0.214	0.214
<b>Alpha Bkgd (cpm)</b>	4.0	1.3	4.0	5.3	1.3	1.3
<b>Sample Time (min)</b>	1.5	1.5	1.5	1.5	1.5	1.5
<b>LAB Time (min)</b>	1.5	1.5	1.5	1.5	1.5	1.5
<b>MDC (dpm/100cm<sup>2</sup>)</b>	48.0	48.0	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
1	7	4.7	20.6	5.3	23.2	5.6
2	1	8.0	35.1	6.7	29.4	20.1
3	8	22.7	106.1	3.3	15.4	91.1
4**	8	1.3	6.1	3.3	15.4	-8.9
5	2	2.0	9.7	0.7	3.4	-5.3
6	1	6.7	29.4	5.3	23.2	14.4
7	8	4.7	22.0	3.3	15.4	7.0
8	8	3.3	15.4	0.0	0.0	0.4
9*	1	7.3	32.0	3.3	14.5	0.0
10	2	7.3	35.3	2.7	13.0	20.3
11	7	5.3	23.2	6.7	29.4	8.3
12	1	6.0	26.3	4.0	17.5	11.3
13*	8	10.7	50.0	1.3	6.1	0.0
14	8	1.3	6.1	1.3	6.1	-8.9
15	8	12.7	59.3	0.7	3.3	44.4
16	2	10.0	48.3	2.0	9.7	33.3
17	1	4.0	17.5	4.7	20.6	2.6
18	8	1.3	6.1	1.3	6.1	-8.9
19	3	6.7	29.4	8.0	35.1	14.4
20**	2	2.7	13.0	2.0	9.7	-1.9
21	3	8.7	38.2	8.0	35.1	23.2
22	2	3.3	15.9	2.0	9.7	1.0
23	8	4.7	22.0	2.0	9.3	7.0
24**	8	0.7	3.3	3.4	15.9	-11.7
25	3	4.7	20.6	8.0	35.1	5.6
26*	8	15.3	71.5	0.7	3.3	0.0
27	1	6.0	26.3	4.7	20.6	11.3
28	1	22.7	99.6	8.0	35.1	84.6
29	8	1.3	6.1	3.3	15.4	-8.9
30	8	2.7	12.6	0.7	3.3	-2.4
31	8	3.3	15.4	3.3	15.4	0.4
32	8	16.7	78.0	2.0	9.3	63.1

18

**SURVEY UNIT T10-A-001  
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm2)	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm2)	Sample Net Activity (dpm/100cm2) <sup>1,2</sup>
33	8	6.7	31.3	2.0	9.3	16.3
34	8	8.7	40.7	2.7	12.6	25.7
35	8	4.0	18.7	3.3	15.4	3.7
36	8	6.0	28.0	3.3	15.4	13.1
37	8	2.7	12.6	0.7	3.3	-2.4
38	8	7.3	34.1	2.0	9.3	19.1

1 - Average LAB used to subtract from Gross Sample Activity

15.0	Sample LAB Average
MIN	-11.7
MAX	91.1
MEAN	12.8
SD	23.5
Transuranic DCGL <sub>w</sub>	100

**QC Measurements**

10 QC	12	5.3	24.8	4	18.7	15.4
5 QC	12	5.3	24.8	0	0.0	15.4

1 - Average QC LAB used to subtract from Gross Sample Activity

9.3	QC LAB Average
MIN	15.4
MAX	15.4
MEAN	15.4
Transuranic DCGL <sub>w</sub>	100

19

**SURVEY UNIT T10-A-001  
RSC - DATA SUMMARY**

<b>Manufacturer:</b>	Eberline	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4	SAC-4
<b>Instrument ID#:</b>	5	6	13
<b>Serial #:</b>	767	1164	833
<b>Cal Due Date:</b>	5/13/03	6/17/03	2/28/03
<b>Analysis Date:</b>	1/24/03	1/24/03	1/28/03
<b>Alpha Eff. (c/d):</b>	0.33	0.33	0.33
<b>Alpha Bkgd (cpm)</b>	0.1	0.4	0.1
<b>Sample Time (min)</b>	2	2	2
<b>Bkgd Time (min)</b>	10	10	10
<b>MDC (dpm/100cm<sup>2</sup>)</b>	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	5	1	1.2
2	6	1	0.3
3	13	0	-0.3
4	14	0	-0.3
5	5	0	-0.3
6	5	1	1.2
7	13	0	-0.3
8	14	1	1.2
9	6	0	-1.2
10	5	1	1.2
11	13	0	-0.3
12	5	0	-0.3
13	13	0	-0.3
14	6	0	-1.2
15	14	0	-0.3
16	6	1	0.3
17	5	0	-0.3
18	13	3	4.2
19	6	0	-1.2
20	5	1	1.2
21	5	0	-0.3
22	6	1	0.3
23	14	0	-0.3
24	13	3	4.2
25	6	0	-1.2
26	14	0	-0.3
27	5	0	-0.3
28	6	0	-1.2
29	13	3	4.2
30	14	3	4.2
31	13	3	4.2
32	14	0	-0.3
33	13	3	4.2
34	14	0	-0.3
35	13	0	-0.3
36	14	0	-0.3
37	13	0	-0.3
38	14	0	-0.3
		MIN	-1.2
		MAX	4.2
		MEAN	0.5
		SD	1.8
		Transuranic DCGL <sub>w</sub>	20

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**SURVEY UNIT T10-B-002**  
**RADIOLOGICAL DATA SUMMARY - PDS**

**Survey Unit Description: Tent 10 (Exterior)**

22

T10-B-002  
PDS Data Summary

**Total Surface Activity Measurements**

	38	38
	Number Required	Number Obtained
MIN	0.0	dpm/100 cm <sup>2</sup>
MAX	74.8	dpm/100 cm <sup>2</sup>
MEAN	33.5	dpm/100 cm <sup>2</sup>
STD DEV	22.4	dpm/100 cm <sup>2</sup>
TRANSURANIC DCGL <sub>w</sub>	100	dpm/100 cm <sup>2</sup>

**Removable Activity Measurements**

	38	38
	Number Required	Number Obtained
MIN	-0.9	dpm/100 cm <sup>2</sup>
MAX	6.1	dpm/100 cm <sup>2</sup>
MEAN	1.0	dpm/100 cm <sup>2</sup>
STD DEV	1.5	dpm/100 cm <sup>2</sup>
TRANSURANIC DCGL <sub>w</sub>	20	dpm/100 cm <sup>2</sup>

**SURVEY UNIT T10-B-002  
TSA - DATA SUMMARY**

<b>Manufacturer:</b>	NE Tech	NE Tech	NE Tech	NE Tech	NE Tech	NE Tech
<b>Model:</b>	DP-6	DP-6	DP-6	DP-6	DP-6	DP-6
<b>Instrument ID#:</b>	1	2	3	10	11	18
<b>Serial #:</b>	3104	3094	2394	3106	394	3104
<b>Cal Due Date:</b>	5/11/03	1/25/03	3/5/03	4/4/03	1/12/03	5/11/03
<b>Analysis Date:</b>	11/14/02	11/14/02	11/14/02	11/20/02	11/20/02	12/18/02
<b>Alpha Eff. (c/d):</b>	0.225	0.224	0.219	0.230	0.228	0.214
<b>Alpha Bkgd (cpm)</b>	0.7	2.0	4.0	2.0	2.7	1.3
<b>Sample Time (min)</b>	1.5	1.5	1.5	1.5	1.5	1.5
<b>LAB Time (min)</b>	1.5	1.5	1.5	1.5	1.5	1.5
<b>MDC (dpm/100cm<sup>2</sup>)</b>	48.0	48.0	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
1	10	12.7	55.2	5.3	23.0	37.4
2	10	15.3	66.5	6.7	29.1	48.7
3	2	12.7	56.7	7.3	32.6	38.9
4**	18	10.7	50.0	1.3	6.1	32.2
5	1	5.3	23.6	5.3	23.6	5.8
6	2	12	53.6	4	17.9	35.8
7	3	13.3	60.7	5.3	24.2	43.0
8	10	20	87.0	1.3	5.7	69.2
9*	1	26.7	118.7	2.7	12.0	0.0
10	1	20	88.9	2	8.9	71.1
11	1	7.3	32.4	4	17.8	14.7
12	10	18	78.3	2.7	11.7	60.5
13*	10	45.3	197.0	3.3	14.3	0.0
14	1	8.7	38.7	2.7	12.0	20.9
15	1	18.7	83.1	3.3	14.7	65.3
16	1	14.7	65.3	4	17.8	47.6
17	3	6	27.4	6.7	30.6	9.6
18	1	12	53.3	4.4	19.6	35.6
19	1	11.3	50.2	5.3	23.6	32.4
20**	18	19.3	90.2	2.7	12.6	72.4
21	10	21.3	92.6	1.3	5.7	74.8
22	10	16	69.6	2.7	11.7	51.8
23	1	10.7	47.6	7.3	32.4	29.8
24**	18	4.7	22.0	1.3	6.1	4.2
25	10	18.7	81.3	0.7	3.0	63.5
26*	10	32	139.1	2.7	11.7	0.0
27	2	6	26.8	4.8	21.4	9.0
28	2	16.7	74.6	5.3	23.7	56.8
29	1	7.3	32.4	7.3	32.4	14.7
30	3	11.3	51.6	4.7	21.5	33.8
31	1	13.3	59.1	4.7	20.9	41.3
32	3	7.3	33.3	3.3	15.1	15.6

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**SURVEY UNIT T10-B-002  
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
33	1	8.7	38.7	2.7	12.0	20.9
34	3	9.3	42.5	6	27.4	24.7
35	1	6.7	29.8	2.7	12.0	12.0
36	3	6.7	30.6	6.7	30.6	12.8
37	3	11.3	51.6	4	18.3	33.8
38	1	11.3	50.2	2.7	12.0	32.4

1 - Average LAB used to subtract from Gross Sample Activity

2 - The initial Sample Net Activity for the locations listed below were initially elevated as noted:

4 195.8 dpm/100cm<sup>2</sup>

20 135.0 dpm/100cm<sup>3</sup>

24 108.9 dpm/100cm<sup>4</sup>

These locations were re-surveyed after a decay period.

Re-survey results were less than the transuranic DCGL and is the value reported.

**QC Measurements**

7 QC	11	13.3	58.3	3.3	14.5	43.9
14 QC	11	10.7	46.9	3.3	14.5	32.5

1 - Average QC LAB used to subtract from Gross Sample Activity

17.8	Sample LAB Average
MIN	0.0
MAX	74.8
MEAN	33.5
SD	22.4
Transuranic DCGL <sub>w</sub>	100

14.5	QC LAB Average
MIN	32.5
MAX	43.9
MEAN	38.2
Transuranic DCGL <sub>w</sub>	100

\*\* - The initial Sample Net Activity for the locations listed below were initially elevated as noted:

9 195.8 dpm/100cm<sup>2</sup>

13 135.0 dpm/100cm<sup>3</sup>

26 108.9 dpm/100cm<sup>4</sup>

A coupon sample was collected each of these locations and analyzed using the Canberra ISOCS system. No transuranic isotopes were detected. Sample activity was determined to be from uranium and other naturally occurring isotopes.

The Sample Net Activity for each location is below the Uranium DCGLW limits (5000 dpm/100cm<sup>2</sup>).

All survey results are less than the applicable DCGLs, therefore, no further investigation is required.

On this basis, transuranic values for locations listed above are reported as zero (0) net activity in the TSA Data Summary.

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**SURVEY UNIT T10-B-002  
RSC - DATA SUMMARY**

Manufacturer:	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4
Instrument ID#:	6	7	8
Serial #:	959	963	952
Cal Due Date:	1/18/03	1/3/03	1/31/03
Analysis Date:	11/15/02	11/15/02	11/15/02
Alpha Eff. (c/d):	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.3	0.0	0.0
Sample Time (min)	2	2	2
Bkgd Time (min)	10	10	10
MDC (dpm/100cm <sup>3</sup> )	9.0	9.0	9.0

Manufacturer:	Eberline	Eberline	Eberline
Model:	SAC-4	SAC-4	SAC-4
Instrument ID#:	12	13	14
Serial #:	959	833	963
Cal Due Date:	1/18/03	2/28/03	1/3/03
Analysis Date:	11/15/02	11/15/02	11/15/02
Alpha Eff. (c/d):	0.33	0.33	0.33
Alpha Bkgd (cpm)	0.2	0.0	0.1
Sample Time (min)	2	2	2
Bkgd Time (min)	10	10	10
MDC (dpm/100cm <sup>3</sup> )	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>3</sup> )
1	12	2	2.4
2	13	1	1.5
3	6	0	-0.9
4	14	3	4.2
5	7	0	0.0
6	8	0	0.0
7	7	2	3.0
8	15	0	0.0
9	8	0	0.0
10	8	1	1.5
11	9	1	1.5
12	12	2	2.4
13	13	0	0.0
14	9	4	6.1
15	9	0	0.0
16	7	0	0.0
17	6	1	0.6
18	9	0	0.0
19	6	0	-0.9
20	14	2	2.7
21	15	0	0.0
22	12	2	2.4
23	6	1	0.6
24	13	1	1.5
25	14	1	1.2
26	15	1	1.5
27	7	1	1.5
28	8	0	0.0
29	6	0	-0.9
30	9	0	0.0
31	7	0	0.0
32	8	1	1.5
33	6	0	-0.9
34	9	0	0.0
35	7	2	3.0
36	8	0	0.0
37	6	2	2.1
38	9	0	0.0
		MIN	-0.9
		MAX	6.1
		MEAN	1.0
		SD	1.5
		Transuranic DCGL <sub>w</sub>	20

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\*\*\*\*\*  
\*\*\*\*\* GAMMA SPECTRUM ANALYSIS \*\*\*\*\*  
\*\* Canberra Mobile Laboratory Services \*\*  
\*\*\*\*\*

Report Generated On : 1/6/2003 7:11:14 AM

RIN Number : 03S0082  
Analytical Batch ID : 0212264453  
Line Item Code : RC10B019

Filename: S:\GENIE2K\CAMFILES\LI009(D)\ORIG\D1900025.CNF

Sample Number : 03S0082-004.001  
Lab Sample Number : CMLS-2109  
Sample Receipt Date : 12/26/2002  
Sample Volume Received : 3.42E+001 grams

Result Identifier : N/A

Peak Locate Threshold : 2.50  
Peak Locate Range (in channels) : 100 - 8192  
Peak Area Range (in channels) : 100 - 8192  
Identification Energy Tolerance : 1.000 keV

Sample (Final Aliquot Size) : 3.420E+001 grams  
Sample Quantity Error : 0.000E+000  
Systematic Error Applied : 0.000E+000

Sample Taken On : 12/19/2002 4:00:00 PM  
Acquisition Started : 12/26/2002 3:19:48 PM

Count Time : 28800.0 seconds  
Real Time : 28802.4 seconds  
Dead Time : 0.01 %

Energy Calibration Used Done On : 10/4/02

Energy = -0.113 + 0.250\*ch + -1.63E-007\*ch^2 + 2.03E-011\*ch^3

Corrections Applied:

None

Efficiency Calibration Used Done On : 1/6/03  
Efficiency Geometry ID : 03S0082-004.001

Analyzed By: Sheri Chambers Date: 1/06/03

Reviewed By: Marilyn Umbaugh Date: 1/06/03

*Test 10 External  
TID-B-002  
Panel Pieces*

Sample and QC Sample Results Summary 1/6/03 7:11:14 AM Page 2

\*\*\*\*\*  
\*\*\*\*\* Sample and QC Sample Results Summary \*\*\*\*\*  
\*\*\*\*\*

Site Sample ID : 03S0082-004.001

Analytical Batch ID : 0212264453

Sample Type (Result Identifier): D19

Lab Sample Number : CMLS-2109

Geometry ID : 03S0082-004.001

Filename: S:\GENIE2K\CAMFILES\LI009(D)\ORIG\D1900025.CNF

Detector Name: BEGE

MDA = Curie method as specified in Genie-2000 Customization Tools Manual  
Appendix B; Basic Algorithms.

Analyte	Activity (pCi/grams )	2-Sigma Uncertainty (pCi/grams )	MDA (pCi/grams )
K-40n	1.85E+000	9.21E-001	1.39E+000
CS-137n	0.00E+000	0.00E+000	1.63E-001
TL-208n	0.00E+000	0.00E+000	1.45E-001
PO-210in	0.00E+000	0.00E+000	1.55E+004
BI-212n	0.00E+000	0.00E+000	2.48E+000
PB-212n	0.00E+000	0.00E+000	1.58E-001
BI-214n	0.00E+000	0.00E+000	3.32E-001
PB-214n	0.00E+000	0.00E+000	2.51E-001
RA-226n	0.00E+000	0.00E+000	1.40E+000
AC-228n	0.00E+000	0.00E+000	6.38E-001
TH-230n	0.00E+000	0.00E+000	9.30E+000
Th-231n	0.00E+000	0.00E+000	5.25E-001
PA-234Mn	0.00E+000	0.00E+000	1.86E+001
PA-234n	0.00E+000	0.00E+000	1.39E-001
U-235	6.57E-002	5.22E-002	8.64E-002
U238/234	5.43E-001	3.68E-001	5.92E-001
AM-241	0.00E+000	0.00E+000	7.70E-002

i - If Po-210 is detected in the spectrum. This peak may be the result of the interaction of Pb-206(n,n') which also produces a prompt gamma at 803 keV.

n - Non-contractual Nuclide

**SURVEY UNIT T11-A-003**  
**RADIOLOGICAL DATA SUMMARY - PDS**

**Survey Unit Description: Tent 11 (Interior)**

**T11-A-003**  
**PDS Data Summary**

**Total Surface Activity Measurements**

	37	37
	Number Required	Number Obtained
MIN	-7.9	dpm/100 cm <sup>2</sup>
MAX	50.5	dpm/100 cm <sup>2</sup>
MEAN	12.2	dpm/100 cm <sup>2</sup>
STD DEV	13.6	dpm/100 cm <sup>2</sup>
TRANSURANIC DCGL <sub>w</sub>	100	dpm/100 cm <sup>2</sup>

**Removable Activity Measurements**

	37	37
	Number Required	Number Obtained
MIN	-0.9	dpm/100 cm <sup>2</sup>
MAX	3.0	dpm/100 cm <sup>2</sup>
MEAN	0.4	dpm/100 cm <sup>2</sup>
STD DEV	1.1	dpm/100 cm <sup>2</sup>
TRANSURANIC DCGL <sub>w</sub>	20	dpm/100 cm <sup>2</sup>

**SURVEY UNIT T11-A-003  
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	1	2	5	6
Serial #:	1366	1366	1513	1261
Cal Due Date:	6/26/03	6/26/03	4/30/03	6/19/03
Analysis Date:	1/20/03	1/20/03	1/21/03	1/21/03
Alpha Eff. (c/d):	0.219	0.219	0.217	0.207
Alpha Bkgd (cpm)	4.0	4.0	0.7	2.7
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	7	10	11	12
Serial #:	1445	673	279	1261
Cal Due Date:	6/30/03	6/6/03	7/15/03	6/19/03
Analysis Date:	1/21/03	1/27/03	1/27/03	1/27/03
Alpha Eff. (c/d):	0.224	0.176	0.170	0.207
Alpha Bkgd (cpm)	2.0	2.0	2.0	4.0
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
1	1	3.3	15.1	3.3	15.1	-2.0
2	1	2.7	12.3	2.7	12.3	-4.8
3	1	5.3	24.2	5.3	24.2	7.1
4	5	4.7	21.7	6.7	30.9	4.6
5	1	4.0	18.3	2.7	12.3	1.2
6	1	6.0	27.4	2.0	9.1	10.3
7	7	7.3	32.6	2.0	8.9	15.5
8	7	10.7	47.8	2.0	8.9	30.7
9	6	7.3	35.3	1.3	6.3	0.0
10	1	5.3	24.2	2.0	9.1	7.1
11	1	10.0	45.7	6.0	27.4	28.6
12	1	4.7	21.5	2.0	9.1	4.4
13	6	3.3	15.9	1.3	6.3	0.0
14	6	8.7	42.0	4.7	22.7	24.9
15	1	3.3	15.1	8.0	36.5	-2.0
16	6	14.0	67.6	1.3	6.3	50.5
17	5	6.7	30.9	4.7	21.7	13.8
18	1	2.7	12.3	4.0	18.3	-4.8
19	1	8.0	36.5	4.0	18.3	19.4
20	1	6.7	30.6	3.3	15.1	13.5
21	1	6.0	27.4	4.7	21.5	10.3

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**SURVEY UNIT T11-A-003  
TSA - DATA SUMMARY**

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
22	6	6.7	32.4	4.0	19.3	15.3
23	2	4.7	21.5	2.0	9.1	4.4
24	5	2.0	9.2	0.7	3.2	-7.9
25	1	3.3	15.1	3.3	15.1	-2.0
26	1	8.7	39.7	4.0	18.3	0.0
27	6	8.7	42.0	1.3	6.3	24.9
28	2	6.0	27.4	2.7	12.3	10.3
29	1	6.7	30.6	6.0	27.4	13.5
30	1	10.7	48.9	7.3	33.3	31.8
31	5	6.0	27.6	6.7	30.9	10.6
32	5	6.0	27.6	5.3	24.4	10.6
33	5	5.3	24.4	2.0	9.2	7.3
34	5	6.0	27.6	4.7	21.7	10.6
35	5	12.0	55.3	3.3	15.2	38.2
36	5	12.0	55.3	2.7	12.4	38.2
37	5	7.3	33.6	7.3	33.6	16.6

1 - Average LAB used to subtract from Gross Sample Activity

2 - The initial Sample Net Activity for the Locations listed below were elevated as noted

7 - 387.6 dpm/100cm<sup>2</sup>

8 - 166.4 dpm/100cm<sup>2</sup>

17 - 132.8 dpm/100cm<sup>2</sup>

Re-survey result was less than the transuranic DCGL and is the value reported.

17.1	Sample LAB Average
MIN	-7.9
MAX	50.5
MEAN	12.2
SD	13.6
Transuranic DCGL <sub>w</sub>	100

**QC Measurements**

36 QC	7	8.7	38.8	3.3	14.7	22.5
5 QC	7	6.7	29.9	4.0	17.9	13.6

1 - Average QC LAB used to subtract from Gross Sample Activity

16.3	QC LAB Average
MIN	13.6
MAX	22.5
MEAN	18.1
Transuranic DCGL <sub>w</sub>	100

**SURVEY UNIT T11-A-003  
RSC - DATA SUMMARY**

<b>Manufacturer:</b>	Eberline	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4	SAC-4
<b>Instrument ID#:</b>	3	4	8
<b>Serial #:</b>	767	1164	767
<b>Cal Due Date:</b>	5/13/03	6/17/03	5/13/03
<b>Analysis Date:</b>	1/20/03	1/20/03	1/21/03
<b>Alpha Eff. (c/d):</b>	0.33	0.33	0.33
<b>Alpha Bkgd (cpm)</b>	0.3	0.0	0.2
<b>Sample Time (min)</b>	2	2	2
<b>Bkgd Time (min)</b>	10	10	10
<b>MDC (dpm/100cm<sup>2</sup>)</b>	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	4	1	1.5
2	4	0	0.0
3	3	1	0.6
4	9	0	-0.6
5	3	1	0.6
6	3	0	-0.9
7	9	1	0.9
8	3	1	0.6
9	4	0	0.0
10	4	0	0.0
11	4	0	0.0
12	3	0	-0.9
13	8	2	2.4
14	8	0	-0.6
15	3	0	-0.9
16	9	0	-0.6
17	4	0	0.0
18	4	2	3.0
19	3	1	0.6
20	4	1	1.5
21	4	0	0.0
22	9	1	0.9
23	3	2	2.1
24	4	0	0.0
25	3	0	-0.9
26	3	0	-0.9
27	8	1	0.9
28	8	1	0.9
29	9	1	0.9
30	8	1	0.9
31	9	0	-0.6
32	8	2	2.4
33	9	0	-0.6
34	9	1	0.9
35	8	0	-0.6
36	9	0	-0.6
37	8	2	2.4
		MIN	-0.9
		MAX	3.0
		MEAN	0.4
		SD	1.1
		Transuranic DCGL <sub>w</sub>	20

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**SURVEY UNIT T11-B-004**  
**RADIOLOGICAL DATA SUMMARY - PDS**

**Survey Unit Description: Tent 11 (Exterior)**

**T11-B-004**  
**PDS Data Summary**

<u>Total Surface Activity Measurements</u>			<u>Removable Activity Measurements</u>		
	37	38		37	38
	Number Required	Number Obtained		Number Required	Number Obtained
MIN	17.3	dpm/100 cm <sup>2</sup>	MIN	-0.9	dpm/100 cm <sup>2</sup>
MAX	86.1	dpm/100 cm <sup>2</sup>	MAX	4.2	dpm/100 cm <sup>2</sup>
MEAN	53.9	dpm/100 cm <sup>2</sup>	MEAN	0.8	dpm/100 cm <sup>2</sup>
STD DEV	19.2	dpm/100 cm <sup>2</sup>	STD DEV	1.5	dpm/100 cm <sup>2</sup>
TRANSURANIC DCGL <sub>w</sub>	100	dpm/100 cm <sup>2</sup>	TRANSURANIC DCGL <sub>w</sub>	20	dpm/100 cm <sup>2</sup>

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**SURVEY UNIT T11-B-004  
TSA - DATA SUMMARY**

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	3	4	5	6	7
Serial #:	2344	394	3106	3106	394
Cal Due Date:	1/17/03	1/12/03	4/4/03	4/4/03	1/12/03
Analysis Date:	11/18/02	11/18/02	11/20/02	11/21/02	11/21/02
Alpha Eff. (c/d):	0.224	0.228	0.230	0.230	0.228
Alpha Bkgd (cpm)	2.0	2.7	2.0	0.7	0.7
Sample Time (min)	1.5	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0	48.0

Manufacturer:	NE Tech	NE Tech	NE Tech	NE Tech
Model:	DP-6	DP-6	DP-6	DP-6
Instrument ID#:	12	13	14	15
Serial #:	3106	3106	2344	394
Cal Due Date:	4/4/03	4/4/03	1/17/03	1/12/03
Analysis Date:	12/16/02	12/17/02	12/17/02	12/27/02
Alpha Eff. (c/d):	0.230	0.230	0.222	0.228
Alpha Bkgd (cpm)	0.7	1.3	0.7	4.3
Sample Time (min)	1.5	1.5	1.5	1.5
LAB Time (min)	1.5	1.5	1.5	1.5
MDC (dpm/100cm <sup>2</sup> )	48.0	48.0	48.0	48.0

Sample Location Number	Instrument ID#:	Sample Gross Counts (cpm)	Sample Gross Activity (dpm/100cm <sup>2</sup> )	LAB Gross Counts (cpm)	LAB Gross Activity (dpm/100cm <sup>2</sup> )	Sample Net Activity (dpm/100cm <sup>2</sup> ) <sup>1,2</sup>
1	3	20.7	92.4	0.7	3.1	79.8
2	5	18.7	81.3	0.0	0.0	68.7
3	4	8.0	35.1	3.3	14.5	22.5
4	3	13.3	59.4	6.0	26.8	46.8
5	15	21.3	93.4	4.0	17.5	80.8
6	13	14.7	63.9	2.7	11.7	51.3
7	4	13.3	58.3	3.3	14.5	45.7
8	13	20.7	90.0	2.0	8.7	77.4
9	5	7.3	31.7	0.7	3.0	19.1
10	3	20.7	92.4	4.0	17.9	79.8
11	6	17.3	75.2	2.0	8.7	62.6
12	5	16.0	69.6	1.3	5.7	56.9
13	4	10.0	43.9	4.7	20.6	31.2
14	3	12.0	53.6	2.0	8.9	41.0
15	3	6.7	29.9	2.7	12.1	17.3
16	5	21.3	92.6	2.0	8.7	80.0
17	3	15.3	68.3	0.0	0.0	55.7
18	6	10.7	46.5	1.3	5.7	33.9
19	14	20.0	90.1	3.3	14.9	77.5
20	4	14.7	64.5	2.0	8.8	51.9
21	5	14.0	60.9	0.7	3.0	48.3
22	4	13.3	58.3	2.7	11.8	45.7
23	5	13.3	57.8	7.3	31.7	45.2
24	4	17.3	75.9	2.0	8.8	63.3
25	5	7.3	31.7	0.0	0.0	19.1
26	3	14.7	65.6	4.0	17.9	53.0
27	4	11.3	49.6	3.3	14.5	36.9
28	13	18.7	81.3	3.3	14.3	68.7

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**SURVEY UNIT T11-B-004  
TSA - DATA SUMMARY**

29	6	13.3	57.8	5.3	23.0	45.2
30	6	15.3	66.5	4.0	17.4	53.9
31	7	17.3	75.9	5.3	23.2	63.3
32	6	8.7	37.8	1.3	5.7	25.2
33	7	16.7	73.2	1.3	5.7	60.6
34	6	18.7	81.3	4.7	20.4	68.7
35	7	17.3	75.9	4.0	17.5	63.3
36	6	22.7	98.7	4.7	20.4	86.1
37	7	19.3	84.6	4.7	20.6	72.0
38	6	14.0	60.9	2.7	11.7	48.3

1 - Average LAB used to subtract from Gross Sample Activity

2 - The initial Sample Net Activity for the locations listed below were elevated as noted:

5 - 117.4 dpm/100cm<sup>2</sup>                      19 - 117.9 dpm/100cm<sup>4</sup>  
6 - 117.6 dpm/100cm<sup>3</sup>                      28 - 194.6 dpm/100cm<sup>4</sup>  
8 - 103.2 dpm/100cm<sup>4</sup>

Re-survey result was less than the transuranic DCGL and is the value reported

12.6	Sample LAB Average
MIN	17.3
MAX	86.1
MEAN	53.9
SD	19.2
Transuranic DCGL <sub>W</sub>	100

**QC Measurements**

22 QC	6	7.3	31.7	4	17.4	7.2
27 QC	6	8.7	37.8	7.3	31.7	13.3

1 - Average QC LAB used to subtract from Gross Sample Activity

24.6	QC LAB Average
MIN	7.2
MAX	13.3
MEAN	10.2
Transuranic DCGL <sub>W</sub>	100

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**SURVEY UNIT T11-B-004  
RSC - DATA SUMMARY**

<b>Manufacturer:</b>	Eberline	Eberline	Eberline	Eberline
<b>Model:</b>	SAC-4	SAC-4	SAC-4	SAC-4
<b>Instrument ID#:</b>	8	9	10	11
<b>Serial #:</b>	959	833	963	952
<b>Cal Due Date:</b>	1/18/03	2/28/03	1/3/03	1/31/03
<b>Analysis Date:</b>	11/25/02	11/25/02	11/25/02	11/25/02
<b>Alpha Eff. (c/d):</b>	0.33	0.33	0.33	0.33
<b>Alpha Bkgd (cpm)</b>	0.2	0.0	0.1	0.3
<b>Sample Time (min)</b>	2	2	2	2
<b>Bkgd Time (min)</b>	10	10	10	10
<b>MDC (dpm/100cm<sup>2</sup>)</b>	9.0	9.0	9.0	9.0

Sample Location Number	Instrument ID#	Gross Counts (cpm)	Net Activity (dpm/100 cm <sup>2</sup> )
1	8	1	0.9
2	9	1	1.5
3	10	1	1.2
4	11	0	-0.9
5	8	0	-0.6
6	9	1	1.5
7	10	2	2.7
8	11	0	-0.9
9	8	0	-0.6
10	9	1	1.5
11	10	0	-0.3
12	11	0	-0.9
13	8	0	-0.6
14	9	0	0.0
15	10	0	-0.3
16	11	0	-0.9
17	8	0	-0.6
18	9	2	3.0
19	10	3	4.2
20	11	1	0.6
21	8	2	2.4
22	9	0	0.0
23	10	1	1.2
24	11	1	0.6
25	8	1	0.9
26	9	1	1.5
27	10	1	1.2
28	11	0	-0.9
29	8	2	2.4
30	9	2	3.0
31	10	0	-0.3
32	11	1	0.6
33	8	3	3.9
34	9	0	0.0
35	10	0	-0.3
36	11	1	0.6
37	8	0	-0.6
38	9	2	3.0
		MIN	-0.9
		MAX	4.2
		MEAN	0.8
		SD	1.5
		Transuranic DCGL <sub>w</sub>	20

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Property



Waste



Sample

**RELEASE EVALUATION FORM**

Page 1 of \_\_\_\_

Release Evaluation No.: 030121-T130I-009EXTENDED: NOEXPIRES: N/ACharge No.: EFD70000**PART I****SENDER/CUSTODIAN ACKNOWLEDGEMENT**

**Description of Property/Waste/Sample To Be Released/Transferred:** Tent Panels, metal structure, and associated debris from Tent 10 and 11 at the 904 Pad

**Current Location:** Tent 10 and 11 at 904 Pad.

**Destination:** Front Range Landfill, 1830 Weld County Road 5, Erie, CO, 80112

**New Recipient/Custodian:** Same as above

**History/Process Knowledge:** The 904 Pad was used for waste management, Tents 10 and 11 was used for repackaging radioactive material.(i.e. pondcrete, saltcrete). These facilities are being demolished and waste will be disposed of in accordance with site procedures. All associated radiological surveys indicate there are no radiological concerns with the Tents or the Pad or associated debris. However, the 904 Pad, below the surface, could be contaminated from the release of pondcrete and/or saltcrete that occurred on the pads. Also the 904 Pad could be contaminated from IHSSs 900-112, which was located adjacent to the pad.

Has the specified material ever been in an RBA/CA or contacted DOE controlled radioactive materials? No

- 1) By signing below, I certify information provided in Part I of this release evaluation to be true and accurate.
- 2) By signing below, I agree to comply with the specific requirements noted in Part II of this release evaluation.

Sender/Custodian: Greg K Curtis Emp. No: [REDACTED] Date: 2/3/03 Ext: 5638

Greg Curtis

**PART II****RADIOLOGICAL ENGINEERING****SPECIFIC REQUIREMENTS AND/OR COMMENTS:**

*Tents 10 and 11 requires radiological surveys on 15% of the top and bottom of the materials prior to disposition. This includes biased Alpha scan surveys (lower portions of the panels and 15% of items/material touching and/or in the ground) and 30 removable and direct alpha measurements on the material to be released.*

*Copies of all applicable documentation are attached to this release evaluation*

- 1.) *Custodian, ensure that all soil is removed from the collected material upon demolition, prior to removal from the site. This release evaluation does not address the removal of soil or asphalt from the site.*
- 2.) *Custodian, retain a copy of all documents required by this release evaluation. The sender/custodian will be responsible for ensuring a copy of this release evaluation is available for auditing/due diligence purposes.*
- 3.) *Radiological Engineer, process release evaluation to indicate an unrestricted free-release. Sign all appropriate documentation required for the disposition of the affected items.*

Evaluated: Robert English / Robert English Emp. No: [REDACTED] Date: 2-3-03 Ext: 5551

Radiological Engineer

**APPROVAL FOR TRANSFER/SHIPMENT**

Approved: Roger Worrick / Roger Worrick Emp. No: [REDACTED] Date:            Ext: 3353

Radiological Engineer

# PROPERTY/WASTE RELEASE EVALUATION SIGNATURE REQUIREMENTS

Release Evaluation #: 030121-T130I-009

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## Release Evaluation for Waste:

A Release Evaluation for Waste requires an evaluation and unrestricted release approval signature. The evaluation signature is by the Radiological Engineer (RE) providing the methods or criteria for unrestricted release (i.e., survey requirements, analytical requirements, no survey required, etc.). The unrestricted release approval signature for a Release Evaluation for Waste shall be a RE authorized to provide unrestricted release approval. In addition, the evaluation and unrestricted release approval signatures shall not be the same RE. The intent of this provision is to provide peer review of the evaluation and method of unrestricted release. It is important the RE take the peer review process seriously and not become a "rubber stamp" for their fellow engineer.

## Release Evaluation for Property:

A Release Evaluation for Property requires an evaluation and unrestricted release approval signature. For a Release Evaluation for Property, the evaluation and unrestricted release signature may be the same RE. In the past, only one signature was required for property for which a RE could provide an unrestricted release on the basis of process knowledge/history.

## Release Evaluation for Samples:

Samples are any waste or material that is being shipped to an off-site facility for analysis. Samples that may be provided with an unrestricted release using process knowledge/history or standard contamination survey techniques may be authorized for shipment to an off-site facility using the signatory requirements specified for property. Samples which cannot be provided with an unrestricted release using process knowledge/history or standard contamination survey techniques shall be authorized for shipment from the Site using the methodology specified for waste, i.e., second signature being provided by a RE authorized to perform peer review and approval for shipment.

The approval for transfer/shipment section of a Sample Release Evaluation (SRE) shall be revised as noted below for samples which cannot be provide with an unrestricted release.

*"The samples specified in Part 1 of this release evaluation are being provided with authorization for transport as non-radioactive materials in accordance with Department of Transportation (49 CFR) regulation. This authorization for shipment does not constitute an unrestricted release."*

## Additional Documentation:

Number of lines per section may be modified or additional pages attached to ensure adequate documentation of information necessary to perform release evaluation.

Additional pages or attachments to a release evaluation shall have the evaluation number, Page \_\_ of \_\_, initials of Radiological Engineer signing approval for transfer/shipment and date.

# ATTACHMENT C

## Chemical Data Summaries and Sample Maps



### Beryllium Data Summary

Sample Number	Map Survey Point Location	Room	Sample Location	Result (ug/100 cm <sup>2</sup> )
<b>Tent 10</b>				
Tent10-01272003-315-101	1	Main	On asphalt pad	< 0.1
Tent10-01272003-315-102	2	Main	On asphalt pad	< 0.1
Tent10-01272003-315-103	3	Main	On asphalt pad	< 0.1
Tent10-01272003-315-104	4	Main	On asphalt pad	< 0.1
Tent10-01272003-315-105	5	Main	On asphalt pad	< 0.1
Tent10-01272003-315-106	6	Main	On asphalt pad	< 0.1
Tent10-01272003-315-107	7	Main	On asphalt pad	< 0.1
Tent10-01272003-315-108	8	Main	On asphalt pad	< 0.1
Tent10-01272003-315-109	9	Main	On asphalt pad	< 0.1
Tent10-01272003-315-110	10	Main	On asphalt pad	< 0.1
Tent10-01272003-315-111	11	Main	On asphalt pad	< 0.1
Tent10-01272003-315-112	12	Main	On asphalt pad	< 0.1
Tent10-01272003-315-113	13	Main	On asphalt pad	< 0.1
Tent10-01272003-315-114	14	Main	On asphalt pad	< 0.1
Tent10-01272003-315-115	15	Main	On asphalt pad	< 0.1
Tent10-01272003-315-116	16	Main	On asphalt pad	< 0.1
Tent10-01272003-315-117	17	Main	On asphalt pad	< 0.1
Tent10-01272003-315-118	18	Main	On asphalt pad	< 0.1
Tent10-01272003-315-119	19	Main	On asphalt pad	< 0.1
Tent10-01272003-315-120	20	Main	On asphalt pad	< 0.1
Tent10-01272003-315-121	21	Main	On asphalt pad	< 0.1
Tent10-01272003-315-122	22	Main	On asphalt pad	< 0.1
Tent10-01272003-315-123	23	Main	On asphalt pad	< 0.1
Tent10-01272003-315-124	24	Main	On asphalt pad	< 0.1
Tent10-01272003-315-125	25	Main	On asphalt pad	< 0.1
Tent10-01272003-315-126	26	Main	On asphalt pad	< 0.1
Tent10-01272003-315-127	27	Main	On asphalt pad	< 0.1
Tent10-01272003-315-128	28	Main	On asphalt pad	< 0.1
Tent10-01272003-315-129	29	Main	On asphalt pad	< 0.1
Tent10-01272003-315-130	30	Main	On asphalt pad	< 0.1
Tent10-01272003-315-131	31	Main	On asphalt pad	< 0.1
Tent10-01272003-315-132	32	Main	On asphalt pad	< 0.1
Tent10-01272003-315-133	33	Main	On asphalt pad	< 0.1
Tent10-01272003-315-134	34	Main	On asphalt pad	< 0.1
Tent10-01272003-315-135	35	Main	On asphalt pad	< 0.1
Tent10-01272003-315-136	36	Main	On asphalt pad	< 0.1
Tent10-01272003-315-137	37	Main	On asphalt pad	< 0.1
Tent10-01272003-315-138	38	Main	On asphalt pad	< 0.1
Tent10-01272003-315-139	39	Main	On asphalt pad	< 0.1
Tent10-01272003-315-140	40	Main	On asphalt pad	< 0.1
Tent10-01272003-315-141	41	Main	On asphalt pad	< 0.1
Tent10-01272003-315-142	42	Main	On asphalt pad	< 0.1
Tent10-01272003-315-143	43	Main	On asphalt pad	< 0.1
Tent10-01272003-315-144	44	Main	On asphalt pad	< 0.1
Tent10-01272003-315-145	45	Main	On asphalt pad	< 0.1
Tent10-01272003-315-146	46	Main	On asphalt pad	< 0.1
Tent10-01272003-315-147	47	Main	On asphalt pad	< 0.1
Tent10-01272003-315-148	48	Main	On asphalt pad	< 0.1
Tent10-01272003-315-149	49	Main	On asphalt pad	< 0.1
Tent10-01272003-315-150	50	Main	On asphalt pad	< 0.1
Tent10-01272003-315-151	51	Main	On asphalt pad	< 0.1
Tent10-01272003-315-152	52	Main	On asphalt pad	< 0.1
Tent10-01272003-315-153	53	Main	On asphalt pad	< 0.1
Tent10-01272003-315-154	54	Main	On asphalt pad	< 0.1
Tent10-01272003-315-155	55	Main	On asphalt pad	< 0.1
Tent10-01272003-315-156	56	Main	On asphalt pad	< 0.1
Tent10-01272003-315-157	57	Main	On asphalt pad	< 0.1
Tent10-01272003-315-158	58	Main	On asphalt pad	< 0.1
Tent10-01272003-315-159	59	Main	On asphalt pad	< 0.1

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Sample Number	Map Survey Point Location	Room	Sample Location	Result (ug/100 cm <sup>2</sup> )
Tent10-01272003-315-160	60	Main	On asphalt pad	< 0.1
Tent10-01272003-315-161	61	Main	On asphalt pad	< 0.1
Tent10-01272003-315-162	62	Main	On asphalt pad	< 0.1
Tent10-01272003-315-163	63	Main	On metal casing of propane heater, ceiling	< 0.1
Tent10-01272003-315-164	64	Main	On speaker, ceiling	< 0.1
Tent10-01272003-315-165	65	Main	On light fixture, ceiling	< 0.1
Tent10-01272003-315-166	66	Main	On metal casing of propane heater, ceiling	< 0.1
Tent10-01272003-315-167	67	Main	On light fixture, ceiling	< 0.1
Tent10-01272003-315-168	68	Main	On speaker, ceiling	< 0.1
Tent10-01272003-315-169	69	Main	On light fixture, ceiling	< 0.1
Tent10-01272003-315-170	70	Main	On metal casing of propane heater, ceiling	< 0.1
Tent10-01272003-315-171	71	Main	On metal casing of propane heater, ceiling	< 0.1
Tent10-01272003-315-172	72	Main	On metal casing of propane heater, ceiling	< 0.1
Tent10-01272003-315-173	73	Main	On metal casing of propane heater, ceiling	< 0.1
Tent10-01272003-315-174	74	Main	On metal casing of propane heater, ceiling	< 0.1
Tent10-01272003-315-175	75	Main	On metal casing of propane heater, ceiling	< 0.1
Tent10-01272003-315-176	76	Main	On metal casing of propane heater, ceiling	< 0.1
Tent10-01272003-315-177	77	Main	On metal casing of propane heater, ceiling	< 0.1
<b>Tent 11</b>				
Tent11-01242003-315-101	1	Main	On asphalt pad	< 0.1
Tent11-01242003-315-102	2	Main	On asphalt pad	< 0.1
Tent11-01242003-315-103	3	Main	On asphalt pad	< 0.1
Tent11-01242003-315-104	4	Main	On asphalt pad	< 0.1
Tent11-01242003-315-105	5	Main	On asphalt pad	< 0.1
Tent11-01242003-315-106	6	Main	On asphalt pad	< 0.1
Tent11-01242003-315-107	7	Main	On asphalt pad	< 0.1
Tent11-01242003-315-108	8	Main	On asphalt pad	< 0.1
Tent11-01242003-315-109	9	Main	On asphalt pad	< 0.1
Tent11-01242003-315-110	10	Main	On asphalt pad	< 0.1
Tent11-01242003-315-111	11	Main	On asphalt pad	< 0.1
Tent11-01242003-315-112	12	Main	On asphalt pad	< 0.1
Tent11-01242003-315-113	13	Main	On asphalt pad	< 0.1
Tent11-01242003-315-114	14	Main	On asphalt pad	< 0.1
Tent11-01242003-315-115	15	Main	On asphalt pad	< 0.1
Tent11-01242003-315-116	16	Main	On asphalt pad	< 0.1
Tent11-01242003-315-117	17	Main	On asphalt pad	< 0.1
Tent11-01242003-315-118	18	Main	On asphalt pad	< 0.1
Tent11-01242003-315-119	19	Main	On asphalt pad	< 0.1
Tent11-01242003-315-120	20	Main	On asphalt pad	< 0.1
Tent11-01242003-315-121	21	Main	On asphalt pad	< 0.1
Tent11-01242003-315-122	22	Main	On asphalt pad	< 0.1
Tent11-01242003-315-123	23	Main	On asphalt pad	< 0.1
Tent11-01242003-315-124	24	Main	On asphalt pad	< 0.1
Tent11-01242003-315-125	25	Main	On asphalt pad	< 0.1
Tent11-01242003-315-126	26	Main	On asphalt pad	< 0.1
Tent11-01242003-315-127	27	Main	On asphalt pad	< 0.1
Tent11-01242003-315-128	28	Main	On asphalt pad	< 0.1
Tent11-01242003-315-129	29	Main	On asphalt pad	< 0.1
Tent11-01242003-315-130	30	Main	On asphalt pad	< 0.1
Tent11-01242003-315-131	31	Main	On asphalt pad	< 0.1
Tent11-01242003-315-132	32	Main	On asphalt pad	< 0.1
Tent11-01242003-315-133	33	Main	On asphalt pad	< 0.1
Tent11-01242003-315-134	34	Main	On asphalt pad	< 0.1
Tent11-01242003-315-135	35	Main	On asphalt pad	< 0.1

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Sample Number	Map Survey Point Location	Room	Sample Location	Result ( $\mu\text{g}/100\text{ cm}^2$ )
Tent11-01242003-315-136	36	Main	On asphalt pad	< 0.1
Tent11-01242003-315-137	37	Main	On asphalt pad	< 0.1
Tent11-01242003-315-138	38	Main	On asphalt pad	< 0.1
Tent11-01242003-315-139	39	Main	On asphalt pad	< 0.1
Tent11-01242003-315-140	40	Main	On asphalt pad	< 0.1
Tent11-01242003-315-141	41	Main	On asphalt pad	< 0.1
Tent11-01242003-315-142	42	Main	On asphalt pad	< 0.1
Tent11-01242003-315-143	43	Main	On asphalt pad	< 0.1
Tent11-01242003-315-144	44	Main	On asphalt pad	< 0.1
Tent11-01242003-315-145	45	Main	On asphalt pad	< 0.1
Tent11-01242003-315-146	46	Main	On asphalt pad	< 0.1
Tent11-01242003-315-147	47	Main	On asphalt pad	< 0.1
Tent11-01242003-315-148	48	Main	On asphalt pad	< 0.1
Tent11-01242003-315-149	49	Main	On asphalt pad	< 0.1
Tent11-01242003-315-150	50	Main	On asphalt pad	< 0.1
Tent11-01242003-315-151	51	Main	On asphalt pad	< 0.1
Tent11-01242003-315-152	52	Main	On asphalt pad	< 0.1
Tent11-01242003-315-153	53	Main	On asphalt pad	< 0.1
Tent11-01242003-315-154	54	Main	On asphalt pad	< 0.1
Tent11-01242003-315-155	55	Main	On asphalt pad	< 0.1
Tent11-01242003-315-156	56	Main	On asphalt pad	< 0.1
Tent11-01242003-315-157	57	Main	On asphalt pad	< 0.1
Tent11-01242003-315-158	58	Main	On asphalt pad	< 0.1
Tent11-01242003-315-159	59	Main	On asphalt pad	< 0.1
Tent11-01242003-315-160	60	Main	On metal casing of propane heater, ceiling	< 0.1
Tent11-01242003-315-161	61	Main	On light fixture, ceiling	< 0.1
Tent11-01242003-315-162	62	Main	On metal casing of propane heater, ceiling	< 0.1
Tent11-01242003-315-163	63	Main	On metal casing of propane heater, ceiling	< 0.1
Tent11-01242003-315-164	64	Main	On light fixture, ceiling	< 0.1
Tent11-01242003-315-165	65	Main	On metal casing of propane heater, ceiling	< 0.1
Tent11-01242003-315-166	66	Main	On light fixture, ceiling	< 0.1
Tent11-01242003-315-167	67	Main	On metal casing of propane heater, ceiling	< 0.1
Tent11-01242003-315-168	68	Main	On speaker, ceiling	< 0.1
Tent11-01242003-315-169	69	Main	On metal casing of propane heater, ceiling	< 0.1
Tent11-01242003-315-170	70	Main	On light fixture, ceiling	< 0.1
Tent11-01242003-315-171	71	Main	On metal casing of propane heater, ceiling	< 0.1
Tent11-01242003-315-172	72	Main	On metal casing of propane heater, ceiling	< 0.1
Tent11-01242003-315-173	73	Main	On metal casing of propane heater, ceiling	< 0.1
Tent11-01242003-315-174	74	Main	On metal casing of propane heater, ceiling	< 0.1

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# ATTACHMENT D

## Data Quality Assessment (DQA) Detail

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## DATA QUALITY ASSESSMENT (DQA)

### VERIFICATION & VALIDATION (V&V) OF RESULTS

V&V of the data confirm that appropriate quality controls are implemented throughout the sampling and analysis process, and that any substandard controls result in qualification or rejection of the data in question. The required quality controls and their implementation are summarized in a tabular, checklist format for each category of data – radiological surveys and chemical analyses (specifically beryllium).

DQA criteria and results are provided in a tabular format for each suite of surveys or chemical analyses performed. The radiological survey assessment is provided in Table D-1 and beryllium in Table D-2. A data completeness summary for all results is given in Table D-3.

All relevant Quality records supporting this report are maintained in the RISS Characterization Project File. The report will be submitted to the CERCLA Administrative Record for permanent storage within 30 days of approval by the Regulators. All radiological data are organized into Survey Packages, which correlate to unique (MARSSIM) Survey Units. Chemical data are organized by RIN (Report Identification Number) and are traceable to the sample number and corresponding sample location.

Beta/gamma survey designs were not implemented for Tents 10 and 11 based on the conservatism of the transuranic limits used as DCGLs in the unrestricted release decision process. Survey designs were implemented based on the transuranic limits used as DCGLs in the unrestricted release decision process. Coupon samples were taken and analyzed by ISOCS Canberra gamma spectroscopy. Transuranic isotope activity and Uranium and/or other naturally occurring isotope activity were evaluated against, and were less than the Transuranic DCGL<sub>w</sub> (100 dpm/100cm<sup>2</sup>) and the Uranium DCGL<sub>w</sub> (5,000 dpm/100cm<sup>2</sup>) unrestricted release limits.

Consistent with EPA's G-4 DQO process, the radiological survey design for each survey unit performed per PDS requirements was optimized by checking actual measurement results acquired during pre-demolition surveys against the model output with original estimates. Use of actual sample/survey (result) variances in the MARSSIM DQO model confirms that an adequate number of surveys were acquired.

### DQA SUMMARY

In summary, the data presented in this report have been verified and validated relative to the quality requirements and project decisions as stated in the original DQOs. All data are useable based on qualifications stated herein and are considered satisfactory without qualification. All media surveyed and sampled yielded results less than their associated action levels and with acceptable certainties.

Based upon an independent review of the radiological data, it is determined that the original project DQOs satisfied MARSSIM guidance. All facility contamination levels were below applicable DCGL unrestricted release levels. Minimum survey requirements were met, sampling/survey protocol was performed in accordance with applicable RSPs, survey units were properly designed and bounded, and instrument performance and calibration was verified as acceptable. All results meet the PDS unrestricted release criteria.

Chain of Custody was intact; documentation was complete, hold times were acceptable (where applicable,) and packaging integrity/custody seals were maintained throughout the sampling/analysis process. Level 2 Isolation Controls have been posted to prevent the inadvertent introduction of contamination into the facilities. On this basis, Tents 10 and 11 meet the unrestricted release criteria with the confidences stated herein.

**Table D-1 V&V of Radiological Results for Tents 10 and 11**

V&V CRITERIA, RADIOLGICAL SURVEYS		K-H RSP 16.00 Series MARSSIM (NUREG-1575)		
QUALITY REQUIREMENTS				
Parameters		Measure	Frequency	COMMENTS
ACCURACY	Initial calibrations	90%<x<110%	≥1	Multi-point calibration through the measurement range encountered in the field; programmatic records.
	Daily source checks	80%<x<120%	≥1/day	Performed daily/within range.
	Local area background: Field	typically < 10 dpm	≥1/day	All local area backgrounds were within expected ranges (i.e., no elevated anomalies.)
PRECISION	Field duplicate measurements for TSA	≥5% of real survey points	≥10% of reals	N/A
REPRESENTATIVENESS	MARSSIM methodology: Survey Units T10-A-001, T10-B-002, T11-A-003 and T11-B-004.	statistical and biased	NA	Random w/ statistical confidence.
	Survey Maps	NA	NA	Random and biased measurement locations controlled/mapped to ±1m.
	Controlling Documents (Characterization Pkg; RSPs)	qualitative	NA	Refer to the Characterization Package (planning document) for field/sampling procedures (located in Project files); thorough documentation of the planning, sampling/analysis process, and data reduction into formats.
COMPARABILITY	Units of measure	dpm/100cm <sup>2</sup>	NA	Use of standardized engineering units in the reporting of measurement results.
COMPLETENESS	Plan vs. Actual surveys	>95%	NA	See Table D-3 for details.
	Usable results vs. unusable	>95%		
SENSITIVITY	Detection limits	TSA: ≤50 dpm/100cm <sup>2</sup> RA: ≤10 dpm/100cm <sup>2</sup>	all measures	MDAs ≤ 50% DCGL <sub>w</sub>

**Table D-2 V&V of Beryllium Results for Tents 10 and 11**

V&V CRITERIA, CHEMICAL ANALYSES		DATA PACKAGE		COMMENTS
BERYLLIUM	Prep: NMAM 7300 METHOD: OSHA ID-125G	LAB ---->	Johns Manville, Littleton, Co.	
		RIN ---->	RIN03Z0830	
QUALITY REQUIREMENTS		Measure	Frequency	No qualifications significant enough to change project decisions, i.e. classification of a Type 2 Facility confirmed; all results were below associated action levels.
ACCURACY	Calibrations Initial	linear calibration	≥1	
	Continuing	80%<%R<120%	≥1	
	LCS/MS	80%<%R<120%	≥1	
	Blanks – lab & field	<MDL	≥1	
	Interference check std (ICP)	NA	NA	
PRECISION	LCSD	80%<%R<120% (RPD<20%)	≥1	
	Field duplicate	all results < RL	≥1	
REPRESENTATIVENESS	COC	Qualitative	NA	
	Hold times/preservation	Qualitative	NA	
	Controlling Documents (Plans, Procedures, maps, etc.)	Qualitative	NA	
COMPARABILITY	Measurement units	ug/100cm <sup>2</sup>	NA	
COMPLETENESS	Plan vs. Actual samples	>95%	NA	
	Usable results vs. unusable	>95%		
SENSITIVITY	Detection limits	MDL of 0.012 ug/100cm <sup>2</sup>	all measures	



**Table D-3 Data Completeness Summary For Tents 10 and 11**

ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC)	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
Beryllium	Tent 10 (interior)	62 random and 15 biased	77 samples (62 random/15 biased)	No contamination found at any location	10CFR850; OSHA ID-125G  RIN03Z0830: sample locations 101 through 177  No results above the action level (0.2 ug/100cm <sup>2</sup> ) or investigative level (0.1 ug/100cm <sup>2</sup> .)
Beryllium	Tent 11 (interior)	59 random and 15 biased	74 samples (59 random/15 biased)	No contamination found at any location	10CFR850; OSHA ID-125G  RIN03Z0830: sample locations 101-174  No results above the action level (0.2 ug/100cm <sup>2</sup> ) or investigative level (0.1 ug/100cm <sup>2</sup> .)
Radiological	Survey Area 1 Survey Unit: T10-A-001 Tent 10 (interior)	38 α TSA (28 random/10 biased) and 38 α Smears (28 random/10 biased)  2 QC TSA  5% scan	38 α TSA (28 random/10 biased) and 38 α Smears (28 random/10 biased)  2 QC TSA  5% scan	No contamination at any location; all values below unrestricted release levels	Uranium and/or Transuranic DCGL as applicable.
Radiological	Survey Area 1 Survey Unit: T10-B-002 Tent 10 (exterior)	38 α TSA (28 random/10 biased) and 38 α Smears (28 random/10 biased)  2 QC TSA  3% scan	38 α TSA (28 random/10 biased) and 38 α Smears (28 random/10 biased)  2 QC TSA  3% scan	No contamination at any location; all values below unrestricted release levels	Uranium and/or Transuranic DCGL as applicable.  Initial elevated activity at locations 4, 20 and 24 greater than the Transuranic DCGL <sub>w</sub> (100 dpm/100cm <sup>2</sup> ). Locations were allowed to decay per RSP16.02 and re-surveyed. Re-survey results were all less than the Transuranic DCGL <sub>w</sub> (100 dpm/100cm <sup>2</sup> ) and are the values reported in the TSA Data Summary.  Initial elevated activity at locations 9, 13, and 26 (195.8 dpm/100cm <sup>2</sup> , 135.0 dpm/100cm <sup>2</sup> and 108.9 dpm/100cm <sup>2</sup> )

**Table D-3 Data Completeness Summary For Tents 10 and 11**

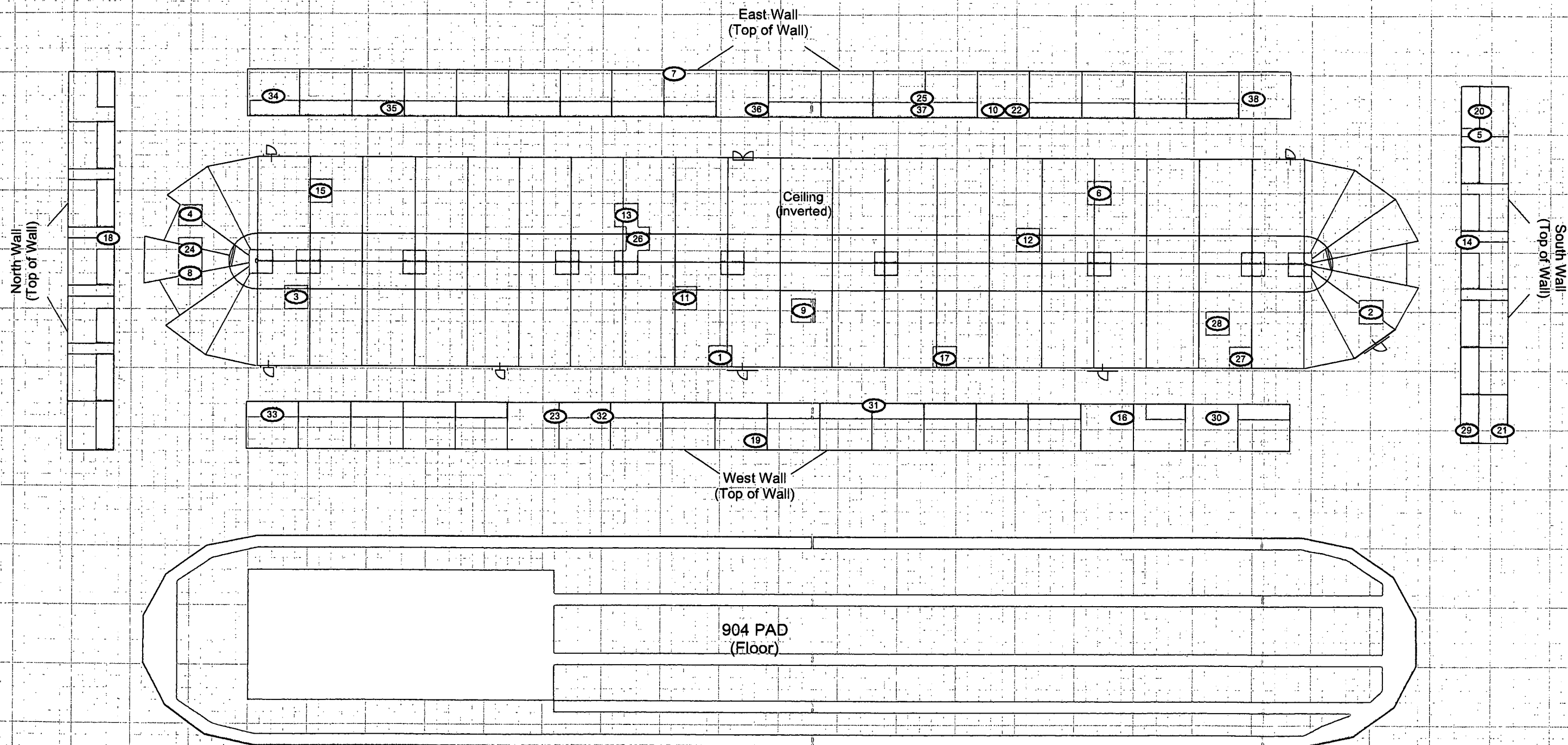
ANALYTE	Building/Area /Unit	Sample Number Planned (Real & QC)	Sample Number Taken (Real & QC)	Project Decisions (Conclusions) & Uncertainty	Comments (RIN, Analytical Method, Qualifications, etc.)
					respectively) greater than the Transuranic DCGL <sub>w</sub> (100 dpm/100cm <sup>2</sup> ). Coupon samples were taken and analyzed by gamma spectroscopy. No transuranic isotope activity was detected. Results confirmed activity to be uranium and/or other naturally occurring isotopes. All coupon results were less than the Uranium DCGL <sub>w</sub> (5000 dpm/100cm <sup>2</sup> ), therefore, all results meet the unrestricted release limits. On this basis, the transuranic values for the above locations are reported as zero (0) in the TSA Data Summary.
Radiological	Survey Area 1 Survey Unit: T11-A-003 Tent 11 (interior)	37 α TSA (27 random/10 biased) and 37 α Smears (27random/10 biased)  2 QC TSA  5% scan	37 α TSA (27 random/10 biased) and 37 α Smears (27random/10 biased)  2 QC TSA  5% scan	No contamination at any location; all values below unrestricted release levels	Uranium and/or Transuranic DCGL as applicable.  Initial elevated sample net activity at locations 7, 8 and 17 (387.6 dpm/100cm <sup>2</sup> , 166.4 dpm/100cm <sup>2</sup> and 132.8 dpm/100cm <sup>2</sup> respectively). Locations were allowed to decay per RSP 16.02 and re-surveyed. All re-survey results were less than the Transuranic DCGL <sub>w</sub> (100 dpm/100cm <sup>2</sup> ) and are the values reported in the TSA Data Summary. All results meet the unrestricted release limits.
Radiological	Survey Area 1 Survey Unit: T11-B-004 Tent 11 (exterior)	37 α TSA (27 random/10 biased) and 37 α Smears (27random/10 biased)  2 QC TSA  3% scan	38 α TSA (27 random/11 biased) and 38 α Smears (27random/11 biased)  2 QC TSA  3% scan	No contamination at any location; all values below unrestricted release levels	Uranium and/or Transuranic DCGL as applicable.  Initial elevated sample net activity at locations 6, 7, 8, 19 and 28 (117.46 dpm/100cm <sup>2</sup> , 117.6 dpm/100cm <sup>2</sup> and 103.2 dpm/100cm <sup>2</sup> , 117.9 dpm/100cm <sup>2</sup> and 194.6 dpm/100cm <sup>2</sup> respectively). Locations were allowed to decay per RSP 16.02 and re-surveyed. All re-survey results were less than the Transuranic DCGL <sub>w</sub> (100 dpm/100cm <sup>2</sup> ) and are the values reported in the TSA Data Summary. All results meet the unrestricted release limits.

# PRE-DEMOLITION SURVEY FOR 904 PAD

Survey Area: 1      Survey Unit: T10-A-001      Classification: 3  
 Building: Tent 10 (904 PAD)  
 Survey Unit Description: Interior of Tent  
 Total Area: 2771 sq. m.      Total Floor Area: 1831 sq. m.

PAGE 1 OF 1

## TENT 10 (904 PAD) Interior



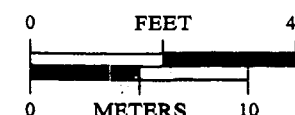
Scan Area

### SURVEY MAP LEGEND

- Smear & TSA Location
- ◆ Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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Scan Survey Information  
 Survey Instrument ID & RCT ID #(s):  
 1, 2, 3, 4, 9, 10, & 11



1 inch = 30 feet    1 grid sq. = 1 sq. m.

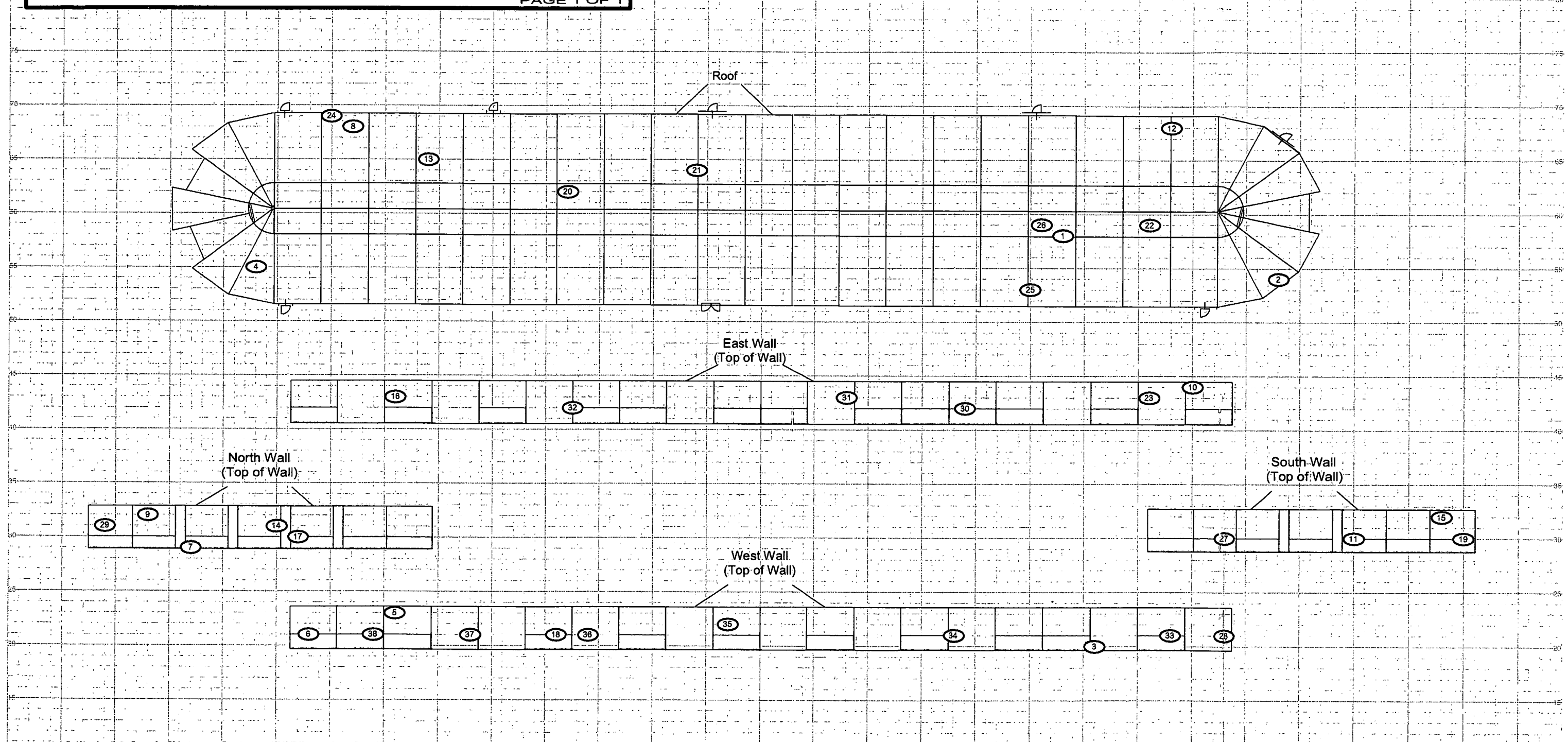
U.S. Department of Energy  
 Rocky Flats Environmental Technology Site  
 Prepared by: GIS Dept. 303-866-7707    Prepared for:  
**DynCorp**  
 THE ART OF TECHNOLOGY  
 MAP ID: 03-00401TENT10-IN-8    January 28, 2003

**PRE-DEMOLITION SURVEY FOR 904 PAD**

Survey Area: 1      Survey Unit: T10-B-002      Classification: 3  
Building: Tent 10 (904 PAD)  
Survey Unit Description: Exterior of Tent  
Total Area: 4588 sq. m.      Total Roof Area: 1831 sq. m.

PAGE 1 OF 1

**TENT 10 (904 PAD)  
Exterior**

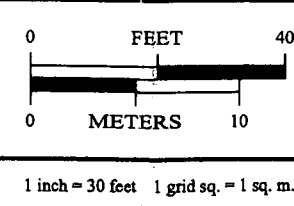


**SURVEY MAP LEGEND**

- Smear & TSA Location
- ◆ Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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Scan Survey Information  
Survey Instrument ID #(s): 3, 4, 5  
RCT ID #(s): 3, 4, 5



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MAP ID: 03-0040/TENT10-EX-SC      Dec. 26, 2002

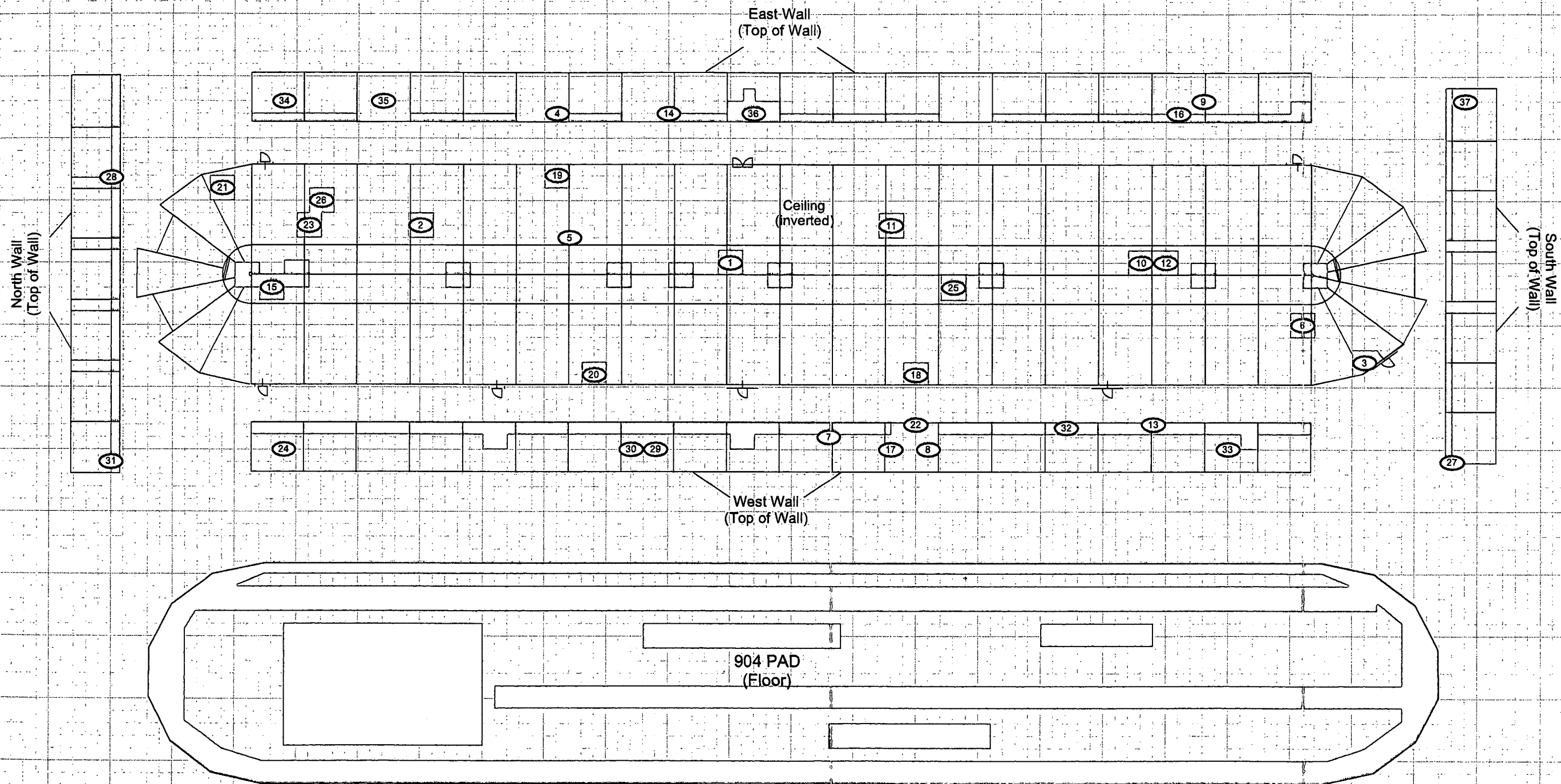
29

PRE-DEMOLITION SURVEY FOR 904 PAD

Survey Area: 1      Survey Unit: T11-A-003      Classification: 3  
Building: Tent 11 (904 PAD)  
Survey Unit Description: Interior of Tent  
Total Area: 4443 sq. m.      Total Floor Area: 1750 sq. m.

PAGE 1 OF 1

TENT 11 (904 PAD)  
Interior



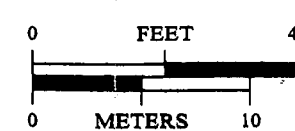
Scan Area

SURVEY MAP LEGEND

- Smear & TSA Location
- Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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Scan Survey Information  
Survey Instrument ID #(s): 5,7,10,11  
RCT ID #(s): 5,7,10,11



1 inch = 30 feet 1 grid sq. = 1 sq. m.

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THE ART OF TECHNOLOGY  
Kaiser Hill  
MAP ID: 03-0040TENT11-IN-Scn      Jan 30, 2003

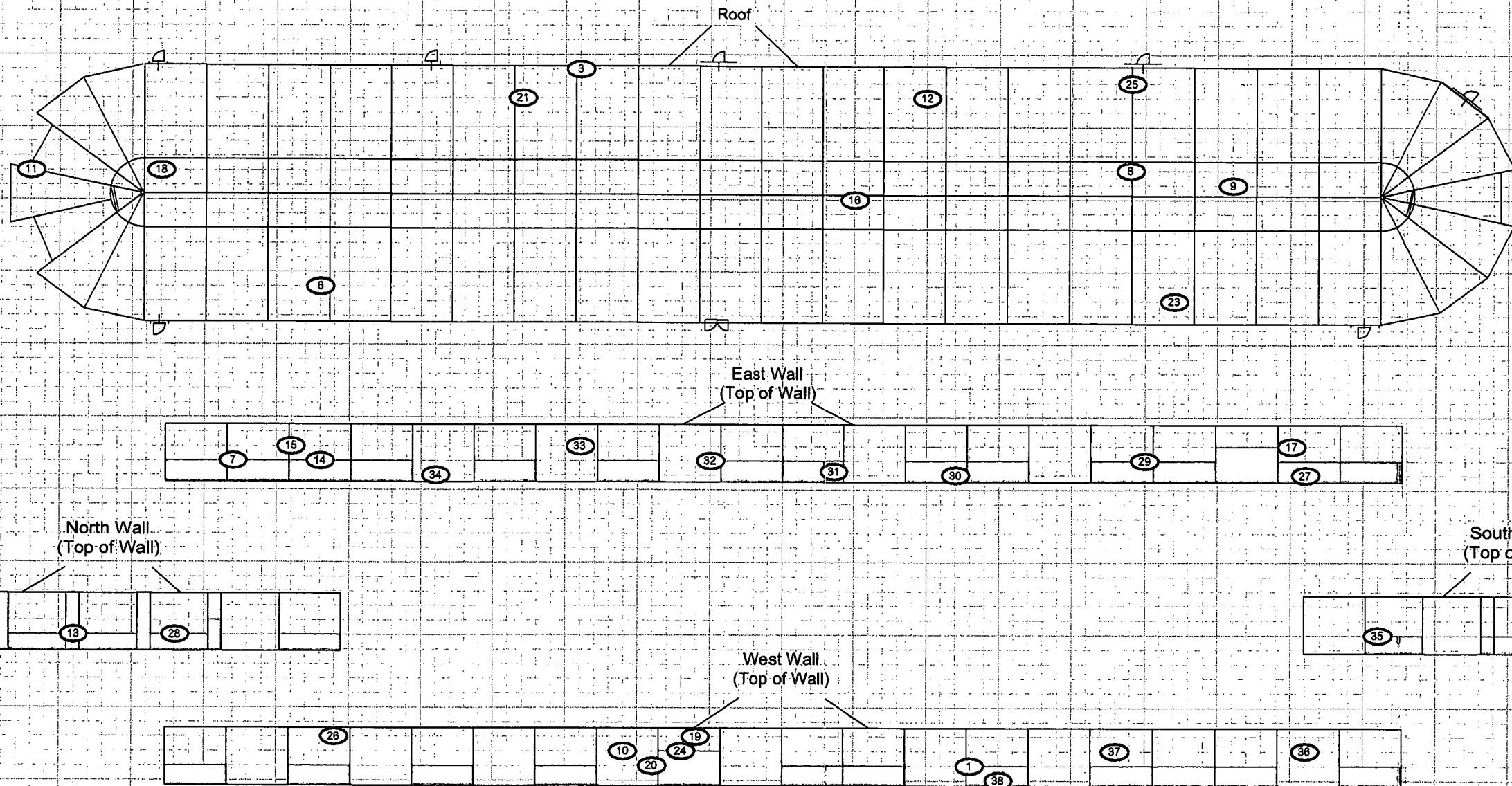
35

**PRE-DEMOLITION SURVEY FOR 904 PAD**

Survey Area: 1      Survey Unit: T11-B-004      Classification: 3  
Building: Tent 11 (904 PAD)  
Survey Unit Description: Exterior of Tent  
Total Area: 2693 sq. m.      Total Floor Area: 1750 sq. m.

PAGE 1 OF 1

**TENT 11 (904 PAD)**  
**Exterior**

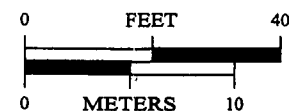


**SURVEY MAP LEGEND**

- Smear & TSA Location
- ◆ Smear, TSA & Sample Location
- Open/Inaccessible Area
- Area in Another Survey Unit

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**Scan Survey Information**  
Survey Instrument ID #(s) & RCT ID #(s):  
1, 2



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Dec 30, 2002

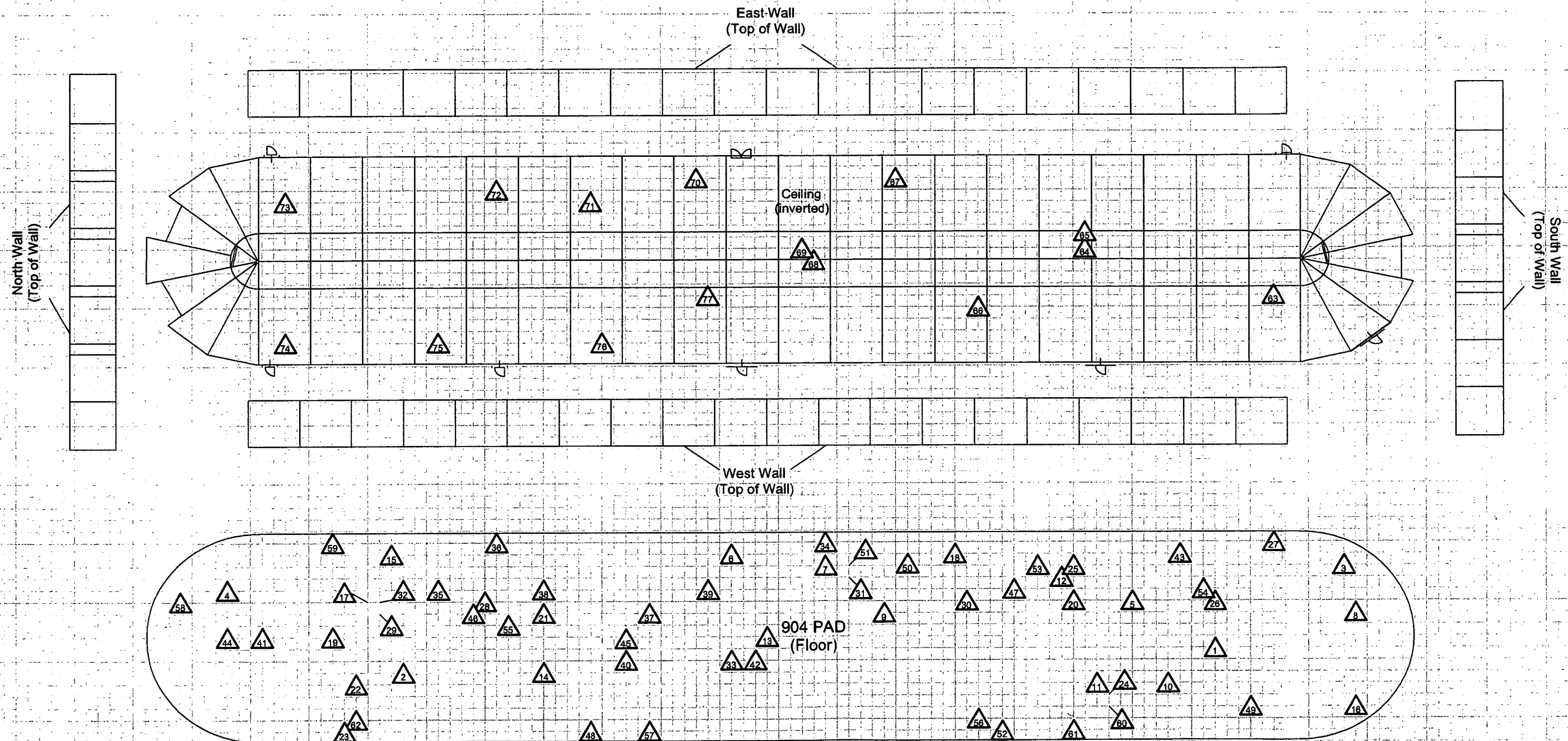


# CHEMICAL SAMPLE MAP

Tent 10 (904) Pad

PAGE 1 OF 1

TENT 10 (904 PAD)  
Interior

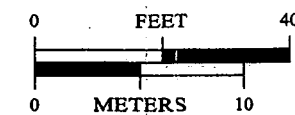


## SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit



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KAISER HILL  
CORP.  
Jan. 28, 2003

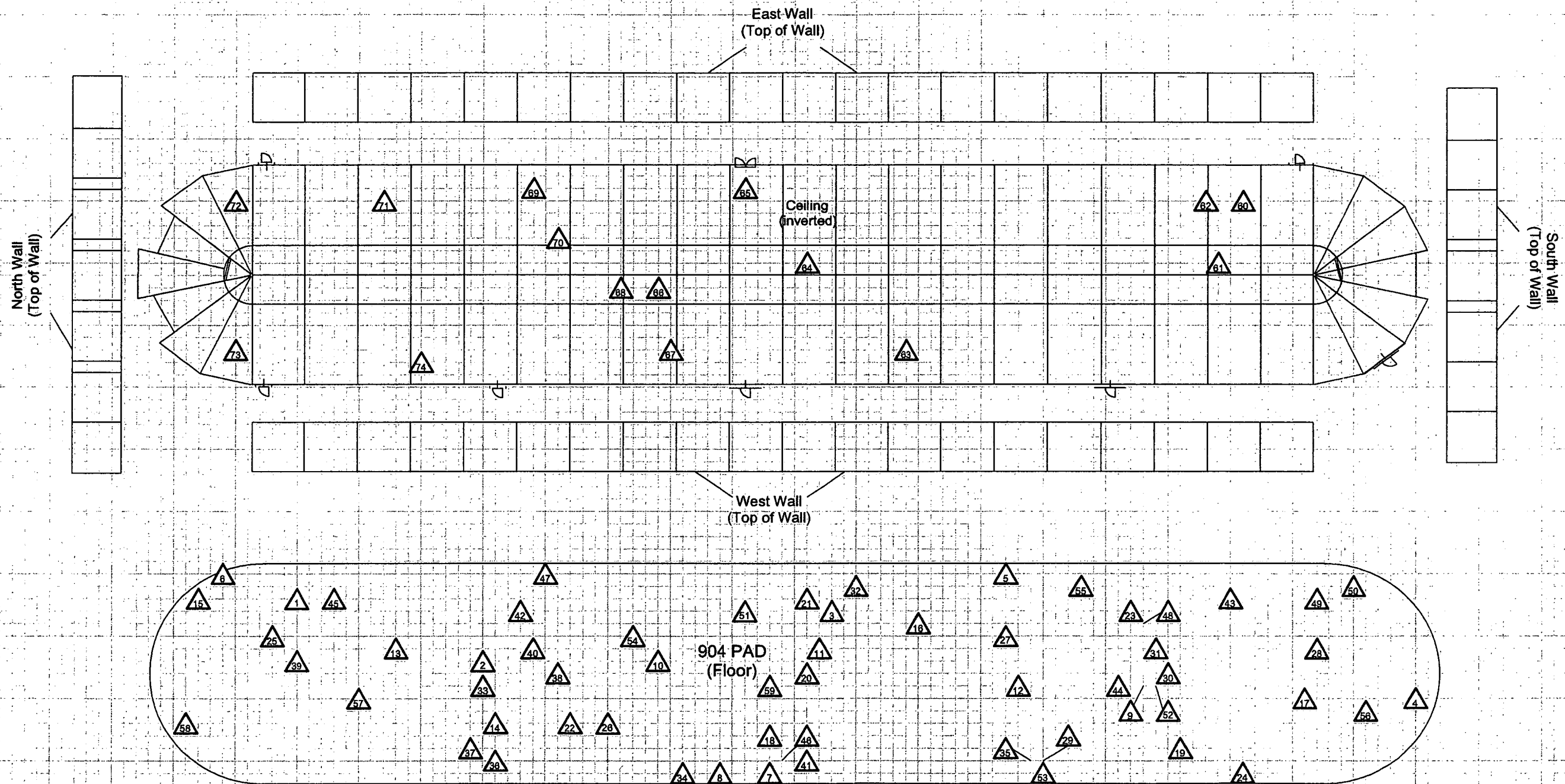
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# CHEMICAL SAMPLE MAP

Tent 11 (904) Pad

PAGE 1 OF 1

TENT 11 (904 PAD)  
Interior

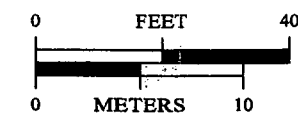


## SURVEY MAP LEGEND

- Asbestos Sample Location
- Beryllium Sample Location
- Lead Sample Location
- RCRA/CERCLA Sample Location
- PCB Sample Location

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- Open/Inaccessible Area
- Area in Another Survey Unit



1 inch = 30 feet 1 grid sq. = 1 sq. m.

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MAP ID: 03-0040/TENT11-IN  
Prepared for: KAISER HILL  
Jan. 28, 2003